The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 23. JUNE 10, 1939. VOL. 51.

National Nutrition Conference*

(*Continued from page* 705)

VETERINARY ASPECTS OF NATIONAL NUTRITION

WM. C. MILLER, M.R.C.V.S., F.R.S.E.
ROYAL VETERINARY COLLEGE,
LONDON

I would like in just a word to compliment the British Medical Association, and the Organisation Committee of this Conference, for the great wisdom of their decision to hold a series of meetings dealing with the much neglected subject of nutrition. I would also thank them for the honour they have done me in extending an invitation to speak.

INTRODUCTORY.

In all probability, the first quarter of this century will be registered in the archives of history as a period when the major attention was devoted to the elucidation of disease causation upon a purely bacteriological basis. Subsequently, and to some extent concurrently, we have seen a phase of intensive investigation of diseases of plants, animals and man due to viruses: a phase, the end of which has not yet been reached. Slowly during this time it has become very clear that neither the bacterium nor the virus is the complete answer to the question, "What causes disease?" Minerals have enjoyed a phase of popularity; vitamins are fashionable, but though both are important, neither of them is more than one factor in the cause of disease.

I think we may reasonably assume that a further contribution to the solution of the general problem is being made and will continue to be made by intensive study of the nutrition of the organism, viewed as a whole. Considerable progress is being made on the frontiers of this newer knowledge, and although the horizons are as yet by no means clear, various avenues are being opened up to give a far more lucid conception of the situation. In the forefront of this endeavour there is a body of academic research workers in the realms of pure science—chemistry, bio-chemistry, biophysics, physiology and so on. Behind them are those who direct and carry out applied research, whether to man, animals, or plants, and later there are those whose task it is to effect consolidation by the organisation, control, and application of knowledge to the masses and to the individual. Neither in human nor in veterinary medicine is the organisation perfect, but the structure is already loosely something along these lines.

It is my duty to outline (and it must be an outline only) the field of activity of the veterinarian in relation to the health of the people, and to suggest for your consideration what further functions he, whether independently or as an integral unit in a co-ordinated plan, might usefully perform.

The activities of the veterinarian as a factor in human nutrition schemes fall into five main categories.

I.—ADMINISTRATIVE CONTROL OF ANIMAL DISEASE

The health of the public in Britain is safeguarded to a very considerable extent by the control of certain diseases of animals exercised by the Veterinary Staff of the Animal Health Division of the Ministry of Agriculture and Fisheries, together with members of panels of part-time officers chosen from among veterinary practitioners who perform local duties under the direction of an area official. This organisation has recently been reconstituted into a unified veterinary service.

It is well known to you that it is only during comparatively recent years that a concerted effort has been made to reduce the incidence of certain major diseases among animals which may be contracted by the human being, and although much progress has been made, there

*Conference summoned by the British Medical Association, held at the B.M.A. House, London, on April 27th, 28th and 29th, 1939.

is still much to do. By the operation of the Agriculture Act a beginning has been made to eradicate tuberculosis from dairy and other cattle stocks. Some 5,000 herds are already attested free from tuberculosis and many more are in active process of being cleared. Although the health of the animals themselves is the primary consideration, *pari passu* a reduction in the amount of tuberculosis-infected milk available to the consumer will follow, and a reduction in human tuberculosis of bovine origin will result. I would wish here to disarm possible criticism by stating that while I fully appreciate and agree with the logic of the arguments in favour of pasteurisation of all milk for human consumption, it would be deplorable if pasteurisation should ever become a substitute policy for disease eradication. The two aspects are each of primary and should be of complementary importance.

From the aspect of livestock health, it is now well authenticated that in the tubercle-free herd the incidence of intercurrent and sporadic diseases and illnesses has markedly diminished. Further, the efficiency of the herd as a milk producing unit is increased by approximately 25 per cent. This means that 20 cows free from tuberculosis can constitute a herd equal in efficiency to one of 25 cows which contains some reactors. The eradication of bovine tuberculosis would enable approximately two hundred million gallons of extra milk to be produced annually without increasing the total number of cows in the country above present levels. Put in another way, there would be available about two ounces more milk per head of the whole population daily without any extra cost of production.

Since the same system of eradicating tuberculosis is now being extended to beef breeding herds, the butcher buying from such a tubercle-free herd has no risks to run of condemnation of carcase meat from tuberculosis. I do not know the annual loss to the country occasioned by condemnation for tuberculosis, but it is tremendous. Some of the animal diseases, apart from tuberculosis, which can cause illness in man include brucellosis, mastitis, some forms of mange and ringworm, and of lesser frequence, anthrax, psittacosis, salmonellosis, glanders, and rabies. Fortunately, glanders and rabies, owing to the vigorous policy pursued in past years, are no longer indigenous in Britain.

Apart from the direct protection of public health afforded by this type of control, however, the veterinary staff of the Ministry of Agriculture is responsible for indirect conservation of animal health in that control is exercised over such diseases as swine fever, foot-and-mouth disease, sheep scab, sheep pox, etc. The net result is that a quantity of sound animal food products—meat, milk and eggs—is made available for human food purposes which might otherwise be lost or at best be of inferior quality. Such activity helps to maintain supplies and to stabilise prices. The shortage of meat and milk suffered by European countries during the extensive outbreaks of foot-and-mouth disease in 1937-38 and even at present, gives some basis for comparison, and indicates what conditions might be like in Britain without such control. Professor Müssemeier recently reported that, in spite of preventive measures, the loss from foot-and-mouth disease in Germany during the recent extensive outbreak is not less than 1,000 million marks (£83,000,000).

II.—Food Inspection Services

Britain even to-day lags behind many foreign countries in the organisation of its food inspection services. The antiquated system whereby the medical officer of health or the sanitary inspector (neither of whom has any specialised knowledge of animal health or disease), is primarily responsible for the inspection and seizure of unsound or diseased animal food products, and what is far more important, for passing meat as fit for human consumption, still operates in many parts of England, while in many of the smaller towns and villages there is still much meat prepared and sold for human consumption which is not examined by anyone.

Where, however, efficient veterinary inspection is carried out a barrier is created to protect the public from the effects of consuming diseased or unsound animal food products. In certain large cities, not only meat and milk, but fish, preserved food, fruit, vegetables and so on, come under the same scrutiny. Harmful foods are seized and safely destroyed, while a constant watch is maintained upon the general quality and wholesomeness of the food sold for human consumption. I need not enlarge further upon the importance of this work to the supply of wholesome and safe foods for public consumption: it is sufficiently obvious. The need for the extension of these services in the public interest is equally obvious.

III.—Control and Treatment of Sporadic and other Animal Disease upon Producers' Premises

The functions of the local veterinary practitioner, in so far as treatment of disease amongst food producing animals is concerned, are similarly well known. The field is a wide one and under the present system it is impossible to estimate the full importance of this work. The Loveday Committee recently estimated that some £19,000,000 are lost annually to livestock owners, and so to agriculture, on account of animal disease. The potential loss prevented by the activities of local practitioners is probably at

least another £19,000,000: this assumes only a 50 per cent. efficiency figure in the treatment of animal disease. (I feel sure that many of my colleagues would take me to task for accusing them of only 50 per cent. efficiency, and the saving they effect may well be greater.)

By securing the confidence of his clients, the veterinary practitioner in breeding and rearing districts plays an increasing part in securing a better, healthier, and more efficient livestock population. He is in a position to act as guide, philosopher, and friend to those who seek his help in matters of animal management, breeding, feeding and along other lines not directly concerned with animal disease. In this way he plays a not inconsiderable part in ensuring a healthier human population, especially in so far as animal foods are concerned. He is capable of contributing a far greater service when called upon to do so.

IV.—Colonial Work

I would like to summarise very briefly the part played in many of the colonies by the veterinary officer, since the work there not only upon disease control but also upon animal husbandry, and all that this entails, has an important bearing upon nutrition and well-being of the native races, upon the industrial efficiency of the colony and therefore indirectly upon the population of Britain so far as it is affected by colonial enterprise, and resulting national wealth, employment, trade, etc.

The work has gradually developed from the control of the major devastating epizoötics which formerly brought famine and havoc in their trail, through the stages of investigation and control of more local diseases, until now progressive colonies are pursuing an active policy of improvement of livestock by the encouragement of proper systems of grazing, conservation of forage and other crops for use during droughts and periods of shortage, improved methods of management, breed selection, use of imported sires for grading up scrub stock, and better processing of meat and milk products. The whole of this work must be under constant expert supervision so that the reactions of stock to differing environmental conditions can be watched and any necessary measures immediately taken, and so that epizoötics, which are still liable to recrudesce, may be controlled and eradicated promptly and efficiently. The veterinary officer is the indispensible keystone to the success of this work, and though co-operation with medical, educational, agricultural and administrative departments, is eminently desirable, no other service can play such an impressive and important function.

The above policy actively pursued is calculated to make possible a higher standard of living for the native. He pays his tax, purchases implements, grows better garden produce; by using more animal manure he increases soil fertility, and is thereby encouraged to adopt settled instead of nomadic farming systems, is better nourished, happy and contented; these factors acting together provide a powerful insurance against social unrest.

V.—Positive Policy of Disease Prevention

Many of the veterinary functions outlined earlier are best described as being of a negative nature, in that each is concerned with the limitation of disease in one form or another after it has already occurred. There is, however, a far more important part to be played by those with a veterinary training and an adequate knowledge of livestock. There is the positive policy, far more comprehensive and important, of disease prevention. The study of health, as an end in itself and of the measures and methods to achieve and maintain health must be carried on as a complementary but fundamental study by those whose work may be mainly concerned with disease.

The training of the veterinarian has until recent years been along lines concerned wholly or mainly with the diseases of animals. Doubtless this type of educational structure was adequate in the earlier and more spacious years of this and a former century. The power of the infective agent and its action upon the tissues were regarded as all important. The farmer was content so long as his animals could be treated when suffering from this or that active diseased process. To a large extent among the older members of the community this view is perhaps still held. There is, however, an acute realisation both by farmers and veterinarians that more is needed.

Eminent men in medicine, whose names are familiar to you all, biologists, sociologists, and others, are doing much to make the public aware that mere freedom from obvious disease is not enough. And so during recent years, revolutionary developments relating to human health have been seen—physical fitness schemes, ante-natal clinics, advisory centres, milk for school children, and various other mechanisms which all aim at increasing human health and the enjoyment of life.

Among primary producers of animal foodstuffs a certain amount of change has similarly begun. The functions of the veterinarian are slowly extending to embrace advice on the details of housing, breeding, rearing, feeding, exercise, and general and particular methods of management in stud, herd and flock.

It is not perhaps desirable, even if it were possible, to discuss these matters in detail, but

it is possible to state quite categorically that the veterinarian who does not have to spend a very considerable proportion of his daily working time in advising upon the achievement and maintenance of health and upon the prevention of disease, cannot regard himself as other than archaic. It is necessary to state categorically that if this country is to make the most of its peculiar agricultural advantages so far as livestock is concerned its farmers must take a far more active interest in health than they have hitherto.

We are entitled to regard home-produced animal products as a superior asset in national health, but the facts are that owing to individual economic insecurity, faulty planning of farm policy whereby animals cannot receive adequate feeding, droughts and shortage of grazing, and various other factors, a proportion of the home-fed beef cattle, fat sheep and lambs, and sometimes even bacon pigs, reaches the market in a wasteful unfinished condition, and it is equally certain that much of the home-produced beef, mutton and bacon could be produced possessing far higher nutritive values than is the case at present. What then are the steps necessary to improve the supply of good quality and safe food of animal origin to the public?

Farm Buildings.—Firstly, animal habitations should be built to ensure maximum efficiency, economic working, adequate shelter and the provision of the general essentials of hygiene. Quite 60 per cent. of British farm steadings are inadequate, badly constructed, incapable of being cleansed and disinfected, uneconomic in working, and unhygienic in every respect but especially in so far as light, fresh air and drainage are concerned. General health of animals suffers, disease is quick to spread and hard to eradicate, accidents and injuries to workers occur, time and labour is wasted because of bad arrangements, and the rearing of young stock is made more difficult. A greater use of food-preparing machinery on farms would ensure fresher meals, etc., and would enable surplus home-grown cereals and legumes to be utilised more cheaply and economically.

A greater use of electric light and power, proper and adequate water supplies, better farm roads, and improvements in shelter from severe weather by open sheds or shelter-belts (which also act as "double fences"), are badly needed on many farms and are complementary improvements which would also do much to improve the efficiency of farms and the health and quality of livestock bred and fed on them.

Breeding.—The quality of most British pedigree stock is excellent, the quality of the average commercial stock on the general mixed farm is poor. A marked improvement has followed the Improvement of Livestock (Licensing of Bulls) Act in Northern Ireland and Scotland, but similar improvement has not yet widely occurred in England. Some system of inspection of females should be explored and measures should be taken to prevent breeding from unsuitable and uneconomic types of all farm stock. Cross-breeding or more correctly "mixed breeding" farther than the half-bred or in some few cases the quarter-bred should be actively discouraged.

There is a very fundamental general mistake being made in the breeding of much of the modern farm live stock. With perhaps the exception of mountain breeds of sheep, too much attention is paid to selection for high production of milk, meat, eggs, etc., and far too little is paid to the less spectacular but basically more important characters of stamina, fertility, longevity, and disease resistance. Those who point to the success of the individual 3,000 gallon cow or the 300 or 320 egg hen, neglect to consider the repercussions which such excessive production has upon the system or upon the progeny, if any. (3,000 gallons of milk = 13½ tons: 300 eggs = 48 lbs., nearly ½ cwt.)

It is significant to note that many individual animals, perhaps cows especially, which have achieved high production records, become barren subsequently. High production is an expensive phenomenon to the animal system: reproduction is also expensive, and the tissues cannot withstand a double strain. However attractive the ephemeral fame of breaking or holding a production record may be, it is more than cancelled by the consequential harm that readily follows.

Some of the breed societies and associations are alive to the dangers and have already taken steps to concentrate attention upon the risks of such a one-sided selection, but the temptation to break a record, ignorance of the dangers which may follow, or a lack of lively appreciation of the consequences, tend to continue and encourage such practices.

Rearing.—More information concerning the diseases and disabilities of young stock and their prevention is urgently needed. The annual loss of lambs, piglings and calves is enormous, and much of it would be prevented if sound and adequate methods of feeding and rearing were widely practised. Improvements to pastures, adequate supplies of vitamins and minerals during winter and the avoidance of unsuitable foodstuffs during juvenile stages of life, would do much to prevent losses and to improve the health, disease resistance and quality of adult animals. More natural systems of rearing, less forcing of young stock, a greater use of good quality, fresh, home-grown food-

stuffs, and a restriction in the use of manufactured compounds containing by-products from imported seeds, would effect improvement in health and constitution in all species of young stock.

Feeding.—There is much evidence that modern methods of "scientific feeding" are producing a cumulative deterioration in health of farm animals. It is difficult to particularise, but the increasing annual wastage in dairy herds (now over 25 per cent.), the rising incidence of sterility in cows and bulls, of mastitis, digestive troubles, and general metabolic disturbances in all classes of farm livestock, and the almost paralysing effects of mortality in poultry kept on the intensive system, point to deficiencies or inaccuracies in the present regimes of feeding. Without doubt some of these troubles can be traced to excessive use of imported vegetable proteins, especially from tropical oleaginous seeds after removal of the oil. Quality of proteins (amino-acid constitution) is of more importance than quantity of crude protein or of protein equivalent, which are practically the sole standards at the present day. Much harm also arises from feeding badly conserved foods and foods which have been processed too much, whereby natural nutritive factors, vitamins, etc., are destroyed or reduced in activity.

Unwise and faulty animal feeding leads not only to a lowered general resistance against disease, but it results in the production of a human food substance of less than perfect nutritional value.

Further study is needed regarding the influence of foods upon amount and quality of the animal product, especially in relation to fattening pigs, dairy cows and both table and egg-laying poultry. Such subjects as flavour, development of taints and rancidity, discoloration, texture, variations in vitamin and mineral contents, etc., of meat and meat products, etc., as influenced by the feeding of animals are not fully appreciated, much less exhaustively studied.

So far as the feeding of sheep, cattle and poultry and to a less extent of pigs, is concerned, however, the greatest need is for a drastic revision of grass management and grassland policy on the majority of farms. Grass and hay form more than 66 per cent. of the food consumed as dry matter by cattle and sheep, and under British conditions the soil is capable of growing grass better than most other crops. There is a lack of knowledge of many of the fundamental details of grassland management which farmers should possess. Further work is needed on such aspects as the effects of different types of management, stocking, resting, rotational grazing, etc., on parasite population, on the survival of pathogenic bacterial flora, on variations in the mineral contents of cereals and legumes (Ca, P_4, Mg, Mn, Fe, etc.) on the prevention or avoidance of "sickness" in grasslands (sheep-sick, poultry-sick, horse-sick and so on). The work entails the co-operation of botanist, plant geneticist, soil expert, agriculturalist and veterinarian, and the improvements possible would amply repay the sums needed to finance adequate research.

It is impossible to over-estimate the importance of grass and grazing on animal health. No method of artificial indoor feeding ever gives results which are comparable with those obtained by proper use of good grazings, and there is adequate evidence to show that correctly managed grassland is one of Britain's richest natural resources for the production of healthy fertile stock yielding products of the highest nutritive quality.

Exercise and General Management.—Much of our commercial animal production on British farms is wasted because of insufficient attention to general management. Exercise is of fundamental importance to the circulatory, respiratory, digestive and reproductive systems and yet the average commercial breeding animal is often denied even a modicum. The system of keeping breeding stock under restricted conditions, *e.g.*, dairy cows in byres in winter, pregnant cows folded on arable land, bulls in loose-boxes, breeding birds under the battery system, etc., has a profound cumulative effect which is often only realised when too late. A better utilisation of open yards and cattle courts, spacious and sheltered yet not wasteful, would go far to improve the general health of dairy herds in districts where the winter is too severe for outdoor grazing, while more shelter belts and wind breaks around grass fields would also help. The system of running grazing animals (including pigs and poultry) upon the same grassland year after year is dangerous and foolish but very common. Many old-established pastures are long overdue for ploughing, cropping for one or two years, and re-sowing with proper grass seed strains and mixtures.

Training and Education.—If the veterinarian is to fulfil an adequate function in the structure of modern social organisation and play the part which his special training and knowledge of the animal in health and disease fits him to carry out, the change in approach which has already occurred should be further emphasised and greatly encouraged at colleges and teaching institutions. For too long the veterinary profession has somewhat blindly modelled its courses of study upon those of the profession of human medicine. Human medical schools have been established in the centres of dense human population; veterinary schools are no

longer in the centres of dense animal population. Field stations are urgently needed so that fuller immediate contact between the student, the soil and the farm animal can be achieved. The bias towards the horse (and more recently to dogs and cats) should be changed, and the food-producing animals should receive the major amount of attention. A detailed intensive study of health should run concurrently with the study of disease, and great emphasis should be laid upon prevention.

The British Administration, both Central and Local, should utilise veterinary services—whether of whole-time or of part-time officers—to the fullest capacity. Most Continental countries, in particular Denmark, Germany, Italy, and Russia, some of which have not the natural and special advantages we possess in Britain, are far ahead of us in their veterinary control of animal health and disease, while in the U.S.A. the veterinarian plays an even greater part than in Europe. In many of the Dominions and self-governing dependencies and in some of the colonies veterinary services are employed far more usefully and with greater advantage to the community.

It is hardly necessary to indicate that should a state of emergency arise it may be necessary to contemplate malicious spread of serious disease among food-producing animals and measures for their control and the protection of the public may become more necessary than they are when no such emergency exists.

I have attempted to give an outline of some of the ways in which veterinary members of the community are contributing and might be called upon further to contribute towards an improvement in the levels of nutrition and so in the health of the general public. The various aspects dealt with have compelled me to be perhaps somewhat sectional and parochial, but I trust I have not conveyed an impression that the major and primary aspect of the urgent need for a general improvement in the health of crops, animals and mankind has been forgotten.

. . . . .

Discussion on Conference Papers devoted to Home Agriculture

The Chairman (Sir John Russell) said a considerable number of points had been brought out and Lord Astor had gone out quite frankly for organising British agriculture on the basis of producing the best biologically efficient foodstuffs for the nation. He did not argue that British agriculture should aim at self-sufficiency; on the contrary, he was in favour of importing various foods in order that we might concentrate on the production of the most efficient foods. Dr. Keith Murray proposed to deal with the matter by subsidising the production of this special group of foods, and at the same time to increase the production by instituting research even more than was being done at present and thus raise the efficiency of the farmers.

Mr. Hurd added a word as to the cause of under-consumption of the biologically efficient foods, and reminded the Conference that however much men talked about food it was the lady in the kitchen who dealt with the food they ultimately consumed.

Another speaker had pointed out that a good deal was being done in the way of providing these foods, the total production of food in this country amounting to about one-third of the total consumption, but the proportion of these protective foods produced at home was considerably higher than this. While he did not quarrel with Lord Astor's suggestion, he spoke of various improvements which could be made whereby the efficiency of the British farmer could be raised and their prices lowered. He also pointed out that too much perturbation should not be felt at the fall in the number of agricultural workers; the increased efficiency of farming might mean that less labour was required on the land.

The Chairman felt that there was a second question they should ask the British Medical Association—they had already asked a question as to the nutrition value of canned foods. Could the Association tell them whether it was to the national advantage that there should be a large number of agricultural workers on the land? Was it, or was it not, a fact that the agricultural worker was healthier than other people, did he have more children, and were those children more healthy than those of the town dweller, did they do better in after-life? He felt it was a question well worth studying.

Professor Miller had indicated various ways in which by improving the health of the animal population considerable increase in the quality of foodstuff could be obtained.

He was sure the Conference would agree there was plenty to think about and discuss and he hoped that in the new veterinary college there would be even greater advances made in the science which had done so much to help British agriculture.

Mr. Wilson (London Chamber of Commerce) wished to put a question to Lord Astor. The position as he saw it was really an economic one. The change-over Lord Astor recommended would involve a great deal of capital expenditure and he wondered whether private capital would be forthcoming so that Government subsidies would not be required. If an enterprise was working with private capital at risk, nine times out of ten there was more initiative used in the proposition. Another question was that of labour, and the bringing back of people to the land. He thought some form of tenant system should be brought into being to encourage those workers who would be thrown out of employment when the armament programme was fulfilled, to leave the towns and go back to the land. He also felt something should be done to improve rural housing.

As Lord Astor had had to leave, Dr. Keith Murray replied to Mr. Wilson. He said that Lord Astor's point was that in the immediate future agriculture would require some assistance if an immediate increased output of protective foods was needed. In the long run a great deal could be done to reduce the cost of production and bring down the price to the consumer, but in the immediate future some assistance would be necessary, possibly diminishing later.

Lord Astor's next point was that a great deal of the assistance being given to the industry at the present time was being misdirected. This year the subsidy to wheat production amounted to about £9,000,000, and practically £5,000,000 would be given to sugar production. The redirection of that £13,000,000 or £14,000,000 would be a much better investment from the point of view of the community as a whole and also from the point of view of farming as a whole.

On the point with regard to the use of capital in agriculture, there is something like £850,000,000 invested in the land and fixed equipment of agriculture in this country, on which return was very low. On certain estates something like 2½ to 3 per cent. was obtained and that would represent about the normal return on capital. During the last year or two it was interesting to note that the City had been much more interested in agricultural land as a type of investment. The land was there and was essentially a long-term security, and even though the rate of interest might be lower than in industrial securities some of the large City financial companies were looking round for land investment. It must be realised that the return on agricultural labour, just as the return on agricultural capital, was lower than in other industries.

With regard to rural housing, Dr. Murray agreed that an improvement would undoubtedly ease the burden of finding labour. It was one of the disadvantages of agriculture and affected particularly the labourer's wife and was one of the contributory causes of so many people leaving the land. If something were done to improve the housing conditions of farm labourers it would help to maintain labour on the land.

Mr. Cleveland Fyfe, National Farmers' Union, said the delegation from the N.F.U. were very grateful to the Association for the invitation to the Conference. They came not to speak, but to listen and learn. He wished, however, to make it clear that in advancing the policy he did Lord Astor had not the support of any responsible agricultural organisation in the United Kingdom. The National Farmers' Union spoke for over 130,000 practical working farmers, and had recently put before His Majesty's Government, together with the organised farmers of Scotland and Northern Ireland, a policy which was poles asunder from that expressed by Lord Astor. Lord Astor had said that the agricultural marketing boards were set up by Parliament; they were set up by the producers of the country in the days of the last Labour Government and it was emphasised by that Government that democratic control should be secured to those boards. The marketing boards had used their powers moderately and wisely, and he was concerned to show that if Lord Astor's policy were adopted the democratic control of the marketing boards would be swept away and the promise given to the farmers when the boards were set up would be broken. That breach of faith would only be consonant with that perpetrated 20 years ago when the Grain Production Acts were repealed, the effect of which was still being felt on the farms of England and Wales.

If there was to be State control of marketing boards then, to be logical, there would have to be control of the industrial co-operative societies. Production came before consumption and it was at least as important to control a distributive organisation such as the machine of the industrial co-operative movement as it was to control farmers' marketing organisations. The policy of State control was not rooted in the soil of the United Kingdom, it was rooted in Geneva, and was designed to support importing interests. The natural economy of this country demanded that a proportion of its soil should be devoted to cereal cultivation and it was recognised that the United Kingdom possessed great natural advantages for the production of wheat, just as it had for the production of milk. Lord Astor would ignore the economy of the industry and the national interest both in respect of livestock and of cereal-growing interests, and would even sweep away that important section of the industry, sugar beet production, which had done so much to prevent the retail price of sugar from soaring.

Lord Astor would be prepared to give to the home producer the same advantages under the Import Duties as manufacturing industries possessed. He had forgotten the public commitments which made it impossible for that policy to be put into effect, and it was on that circumstance that the farmers had put forward the twofold policy which held to-day. In regard to the policy which was agreed to last year at Sydney (Australia) the British farmers did not stand alone, they stood shoulder to shoulder with the farmers of the British Empire and it was their policy to regulate market supplies. He mentioned this because Mr. McDougall would be speaking on the question of Empire production later in the Conference.

The second part of the farmer's policy was complementary to the first and was designed to prevent prices falling to an unduly low level. It might have been imagined from Lord Astor's statement that the British farmer was inefficient and incapable of adapting his industry to changing needs and circumstances. The speaker was grateful to Dr. Keith Murray for giving the figures which showed how completely erroneous that statement was. As Dr. Murray had shown, the farmers during the past half-century, had turned over increasingly to the production of milk, livestock, eggs, fruit and vegetables, and to-day the production of non-protective foods amounted only to 12 per cent. of the total consumption, whereas the protective foods covered some 45 per cent. of the country's consumption.

It would be understood how important it is to maintain the balance of agricultural production and it was important from the national standpoint because, if Lord Astor cared to go into the facts, he would find that whenever the prices of farm products were maintained on a remunerative level unemployment was low; as soon as the price of farm products began to fall, unemployment soared, and it was for that reason that the farmers believed that the policy which they had put forward was the right policy from the nutrition standpoint. They had dealt specifically with the question of nutrition in their statement and had made it clear that the farmers were fully alive to the importance of the subject from the standpoint of a national agricultural policy. They hoped and believed that as a result of the consideration which was being given to their policy statement by the Government, that aspect would not be overlooked, and he assured the Conference that as far as his organisation was concerned, if, as a result of the policy statement which had been submitted, and of the activities of the Conference, an increasing interest was taken in the subject of a nutritional policy, the National Farmers' Union would be the first to give all possible guidance and assistance that it could.

Mr. Montague Fordham, Council Secretary, Rural Reconstruction Association, said that he was speaking on behalf of the Rural Reconstruction Association, a group of specialists who had made for the last 13 years a comprehensive and continuous study of agricultural problems.

The Association differed in its conclusions from Lord Astor; the reason arising in part because he seemed to have left out of consideration certain fundamental aspects of the problem that the Association deemed to be essential to a clear understanding of the subject—as if a medical theory of human life were put forward without giving consideration to the circulation of the blood or the existence of a nervous system. Nevertheless, it was recognised that Lord Astor's group had obtained a certain possession of the public mind and the Association could hardly hope to receive full attention for the moment; wind and weather were against them. There was a perfectly definite, well-worked out, alternative theory.

He would now turn to the specific problems which were being discussed that afternoon, taking first some material facts which should, he thought, be clearly stated.

The present consumption of food in this country was in value, at wholesale prices, round about £550,000,000 a year. In order to provide adequate food for the whole population, an additional £100,000,000's worth of food would be required, making £650,000,000 in all at wholesale prices, which would, under the present system, be sold at about £1,500,000 at retail prices. Out of this £550,000,000's worth of food consumed, about £220,000,000 is produced in this country, about £330,000,000 is imported, of which latter perhaps three-quarters was similar to what was produced at home.

Thus there were two problems relating to production, the first how to provide the extra £100,000,000's worth per year needed to bring the standard of living up to a reasonable level, and the second, to decide to what extent food should be produced at home and to what extent in other countries. If food were imported into this country which might be produced at home quite conveniently, this country had to pay for it twice over. It had to pay the price of the food, and then was involved in the cost of keeping people unemployed, and land and capital out of use. Again, when food came from abroad there was no necessary export of goods and services in return. The eighteenth century theory that trade was necessarily an exchange of goods and services was found by recent experience to be untrue. This absence of exports in return for food imported was already the case as regards about one-third of our imports, and this proportion might well be gradually extended until it comprised a far larger proportion. The absence of any trade return was not likely to be the case as regards home production so that home production of food, developed on the lines recommended, created employment both in agriculture and industry, and thus added to national wealth.

It was fairly obvious from this aspect of the problem that the present under-development of agriculture involved the country in one million to one-and-a-half millions of permanent unemployed and cost it at least £100,000,000 a year. It was difficult to believe that Lord Astor's proposals for limitation of production, if they materialised, would not result in keeping at least three-quarters of a million workers in agriculture and industry unemployed, involving in indirect cost at least £75,000,000 a year—a heavy cost for applying an abstract theory.

These problems were spoken of as if they were agricultural, but they were even more problems of the towns than of the countryside. Unemployment came from the country, from the rural exodus, but though born in the villages it grew up in the towns. There were only two practical proposals for dealing with unemployment. The first and most obvious was a war, the second the restoration of agriculture to its rightful position in national life. The problem was not one in which country and town had a different interest. The so-called tragedy of the countryside was a far greater catastrophe for the towns than for the country.

Mr. D. A. E. Cabot (Ministry of Agriculture) spoke of the development of the scheme introduced by the Ministry in 1935 for the prevention of tuberculosis among cattle. At the beginning progress was disappointing and after three years there were only 1,450 herds attested. During the past 15 months development had been more satisfactory and the number of attested herds now exceeds 6,000. What was also very encouraging was that there were a further 6,000 herds in which the owners were engaged in the eradication of tuberculosis and were receiving financial assistance from the State towards the cost of tuberculin testing of their herds.

One result of the growth of the attestation of herds had been the considerable increase in the number of herds producing tuberculin-tested milk or, under the Scottish designation, certified milk, the number of these herds being about 4,700. Another result of the experience of farmers in the course of their work of eradication of tuberculosis had been more subtle but nevertheless important, and that was the realisation on the part of many that the unit of health, if he might so call it, was not the health of the individual animal but the health of the whole herd.

Another aspect of the duties of the State Veterinary Service which was of interest to the Conference was the inspection of dairy herds. Designated herds were inspected according to the Regulations and in some counties, non-designated herds also were inspected. In recent months, an extension of this service was effected to include all non-designated herds supplying milk under the Milk-in-Schools Scheme and the Maternity and Child Welfare Schemes. During the past year examinations involving over 4,000,000 cattle had been carried out.

Dr. G. T. Wrench said that Professor Miller had spoken of the desirability of the detailed intensive study of health, which encouraged him to put forward a few remarks because this was a study which had interested him since he was a medical student. What exactly was health? He had had no opportunity of answering that question until he came across a statement by Sir Robert McCarrison in his nutrition report in which he said that the people of the Hunza tribe, of Northern India, were a people of remarkable physique, virile in youth and age, and capable of great endurance, enjoying remarkable freedom from disease in general. The speaker felt that at last he had got his healthy people, and he made inquiries and got into communication with those who knew the country well. He found that the health of these people was almost entirely due to a very remarkable and meticulous agriculture, one of great antiquity, that agriculture being described by the rule of return; a good phrase, the rule of return. Everything that took life from the soil

they used; it was collected, composted and returned to the soil for food, human excreta not excepted.

The amount of life on the earth was limited and everything that had once been potentially alive could become living again through the agency of the soil. The rule of return was that in use in this particular area; it is a valley shut in by mountain walls three miles high, and its people are able to collect everything that had once had life and return it after composting as food for the soil. So that a well-fed soil was a very notable feature of this valley, and one found that the vegetable life was also free from disease, as well as the domestic animals and man himself. There was health; health was a cycle, there was no such separate entity as human health, it was part of a cycle, and the other parts of the cycle were the soil, the animal, and the plant. That was a definition of health which he was very glad to put before the Conference.

Dr. W. R. Wooldridge said that one of the important factors to be applied to the discussion was the outlook of the producer. In urban communities he suggested the advances made in recent years by the producer had not been adequately appreciated or even well understood. Violent criticisms against the farmer had often been heard in the past, but the discussion had illustrated that much of this was not justified. Lord Astor had showed that there was a changing outlook amongst agriculturalists as regards the nature of the food they were producing, and Dr. Murray brought home very clearly the most important and extensive strides which the agriculturalist had already made. How had the agriculturalist effected this progress? He had adopted a standard which had been most useful in the past, *viz.*, that of economic return, or of quantity, but which standard should now be somewhat modified. He had bred his animals, fed them, and cared for them in order to produce quantity, volume in the case of milk, and weight of carcase in the case of meat. He would suggest that after the great strides which had been made as a result of adopting these quantity standards, the farmer was now beginning to adopt the further criterion of quality, but he must see whether the food he produced really satisfied the needs of the consuming public; he had to become consumer-conscious.

There were two important aspects of this side of production. First, the farmer must give even greater attention to the hygienic production of his products. He had already immensely improved his methods as regards cleanliness and was now actively engaged upon the eradication of animal diseases; this was all to the good and would repay him manifold from his own point of view, but he must pay stricter attention to the presence of organisms pathogenic to human beings and to their elimination from his products.

The second point on which the farmer was now ready for some modification of the policy he had been following was to look upon his products from the point of view of their actual value in the human dietary. For instance, in the production of milk he had, generally speaking, gone out for quantity, so that at last he had reached the 4,000-gallon-a-year cow. He had to some extent devoted attention to the fat content of his milk and there had been a general wish to improve the composition of the milk from the point of fat, but the speaker submitted that fat composition was not in itself enough. Milk was regarded as one of the most perfect of foods, and cow's milk contained practically double the quantity of fat that human milk did, even before one got away from the legal minimum of 3 per cent. With greater attention to feeding the farmer might be able to increase still further the quality, as well as quantity, in his production. Thus, to take but one simple example, the content of winter-produced milk in vitamin A and D could be easily improved.

With regard to meat, weight had been increased generally by raising the content of fat but greater attention to feeding might produce an increase of weight due to extra protein and not fat. For human beings meat was becoming more and more the main source of protein and high quality amino acids in the diet and to increase the amount of meat produced by increasing its fat content was a policy which was out of date.

The producer of the immediate future would ask himself two questions: first, what exactly does the consumer require, and second, who can best advise as to the methods for meeting these requirements? Some might contend that the research workers in agricultural and veterinary science and the advisers attached to various agricultural institutions can meet this advisory need, but these individuals are few in number and their contacts with individual farmers infrequent. As Dr. Murray said, "the results of research are useless if there are no efficient links for bringing them into practice." Fortunately there was a body of men, who by training and experience, as well as by frequent contact with farmers, were ready to undertake this work as soon as the opportunity was offered to them. There were to-day about 2,000 veterinary surgeons practising in the country districts of Great Britain and he suggested that the spread of the knowledge required among farmers could be efficiently organised through the up-to-date veterinarian with benefit to both the farmer and the community as a whole. This service could be improved still further by the immediate adoption by the Government of the recommendations of the recent Inter-Departmental Committee on Veterinary Education in Great Britain and their early execution.

Professor H. W. Wadham (University of Melbourne) wished to say how much he appreciated the action of the British Medical Association in calling the Conference. He was a member of a council appointed by the Commonwealth of Australia Government to go into the question of human nutrition, which council conducted an exhaustive survey into the present state of nutrition of the people of the country, and published some reports which some of those present might find interesting. He wanted to speak on the question of the eradication of the more elusive elements of perishable foodstuffs during storage. He was on the Commonwealth Nutritional Council as a lone agriculturist among a number of physiologists and biochemists. The point was raised, and at once taken up by his colleagues, who informed him that as far as they knew the process of cold storage did not cause serious deterioration of the vitamin content of various foods. Australian producers and the public generally were interested in this point and any work which could be done further to elucidate the particular problem would be very much welcomed in that country. The speaker was not personally in a position to be in touch with all the experimental work which had been carried out, but he believed there had been certain researches, in particular into the vitamin content of butter produced under Australian

conditions, compared with butter produced from stall-fed cows in Europe. The result was to show that the butter produced from cows which enjoyed long periods of sunlight was higher in vitamin content than that which was produced under European conditions in the winter, and this vitamin content was not lost through the prolonged period of cold storage which the butter had to undergo.

With regard to other kinds of foodstuffs stored in refrigerators, the matter cut both ways. For example, if England were to be self-supporting in its apples it would mean that apples would have to be stored over much longer periods than at present. From the month of April to June Australia could feed the British public on apples which had had only about two months' cold storage, but to do so with British apples would entail something like eight months' storage.

One other matter was the question of the purity of foods from the point of view of bacterial contamination. The laws relating to this question were very strict in Australia and a producer who did not conform to the standard laid down got into trouble, because a high bacterial content caused rapid deterioration. The producers of the Southern Hemisphere of all perishable foodstuffs would be extremely interested in the furthering of research work on this particular point which was of great significance.

The CHAIRMAN expressed the thanks of the meeting to those who had contributed to such an excellent discussion, and added a special vote of thanks to the Association for giving them the opportunity of hearing it at such length and in such detail.

. . . . .

MEDICAL ASPECTS OF NUTRITION

E. P. CATHCART, C.B.E., M.D., F.R.S.

REGIUS PROFESSOR OF PHYSIOLOGY,
UNIVERSITY OF GLASGOW

Probably there is no subject, other than religion, which rouses so much controversy as food and nutrition. The eating of food is such a commonplace act and so many people are acutely interested in what they eat that unconsciously they assume they know something about the subject of nutrition. It may be true to say that many people have a varying knowledge of the subject of alimentation but remarkably few know anything about the infinitely more difficult problem of nutrition. Fortunately for most, provided they do not overeat and suffer from indigestion, the interest in food ceases when once it is swallowed. They are wholly unaware of the daily miracle which takes place within the cells of their body, the conversion of dead material into living tissue. And it is, in the main, the perfection of this transubstantiation which determines the state of nutrition. We know a good deal about the composition of foodstuffs but our ignorance regarding the processes of nutrition is still profound. One thing, however, is certain and that is although the provision of an adequate diet plays of necessity a large part in a good state of nutrition it is not the only factor involved. Malnutrition does not necessarily result solely from an imperfect diet, indeed, malnutrition may be the result of an excessive indulgence in food, to over-eating. Practically everyone realises that the over-fed man is a bad life in the medical and insurance sense, just as it is realised that the thin, wiry, well-trained athlete may be in a state of perfect nutrition. Even in the case of children malnutrition is not only due to the failure to provide an appropriate diet, suited to the child's age. Emerson, for example, in his well-known book on "Nutrition and Growth of Children," places improper diet and faulty food habits as only fourth in order of causation.

No. The problem of nutrition is a much more subtle matter than the mere provision of adequate food. Among the other essentials requisite for the attainment of perfect nutrition, which is simply another way of saying perfect health, is adequate sleep, fresh air, exercise, contentment of mind. You all realise the ill-effects of lack of sleep, the depression resulting from the lack of fresh air, for some, at least, the loss of energy when exercise is curtailed, and the feeling of ease and light-heartedness associated with contentment of mind. The mind, the spirit, the psyche, call it what you will, plays an enormous rôle in the perfection of nutrition. The writer of Proverbs was a sound physiologist when he wrote "Better a dinner of herbs where love is than a stalled ox and hatred therewith," or, as in Professor Moffatt's translation, "Better a dish of vegetables with love than the best beef served with hatred." It certainly is not the mere consumption of food which determines the state of nutrition.

There is another fallacy and that is the apparently widespread belief that our knowledge of the subject of food and nutrition is so far advanced that it is possible to draw up a series of diets which will be perfect, in the sense that they will meet every requirement of the body. This is far from being the case, more especially from the quantitative aspect of the problem. The science of nutrition is still very young. Resulting from the belief that our knowledge is much more advanced that it is, combined with the fact that most people seem to believe that they individually can speak with authority on this matter of nutrition, the subject has become a kind of political football to be kicked hither and thither by those who do not know the elements of the game. This is neither the way to bring about advances in the science of nutrition nor, indeed, to achieve the

end which we all desire, the improvement of the general health of the people.

A subject of constant complaint, perhaps even more often of caustic comment, are the very varying reports on the state of nutrition, particularly of children. Let us say that in area A which is contiguous to area B it is reported that the incidence of malnutrition is 15 per cent. whereas in area B it is only 5 per cent. Obviously it does look as if a mistake had been made somewhere, as it is inconceivable that the difference, provided the areas maintain the same type of population rural or urban, can be one of, for example, race or occupation of parents. The difference in the great majority of instances lies in the assessment made by the medical staff of the area. The real cause is that there is no reliable objective measure of the state of nutrition. The physical measurements of the child do not give much help and the other generally accepted signs are in the main subjective, the gloss of the hair, the bloom of the skin, the brightness of eye, the alertness of response and so on. Each doctor forms his own mental standard and judges the children by this subjective measure. All subjective measures are liable to great distortion. They seem no doubt to the individual to be fixed and sure but are indeed fluid. His judgment is warped by his immediately preceding stimulus. If he has examined a group of children who are fit and well and the next group is less satisfactory he ranks the second group lower than he would have done had the first group been only very moderate. Until some objective standard can be devised it is quite impossible to expect any uniformity in assessment of nutrition in a wide area. Too often as Bacon has said the eye of the examiner "is bedewed with human passion."

I hope I have made it clear that we have to travel a long way yet before we see daylight on many of the aspects of this complex problem of nutrition. Some may think in what I have yet to say that I take a very negative view of the subject. If I do, believe me, it is not that I want even to suggest a "debunking" of the subject —I am far too interested in it—but because I am naturally cautious and because I hate to see rash statements made and rash promises given regarding the good results which will ensue from the promotion of this regimen or that. The "man in the street" cannot judge the evidence, far too often not facts but mere assumptions, on which the statements are based and is naturally disappointed and often resentful when the promised miracles do not take place.

It may be repeated that we know a considerable amount concerning the make-up of the majority of the ordinary foodstuffs, although for materials like the mineral salts and the vitamins our information regarding their quantitative requirements is extremely scanty. We know too that part of the ordinary intake, in weight the bulk of it, is concerned, for the most part, in providing the energy required for running the living organism in its multifarious activities and the remainder is needful for keeping the organism, in many devious ways, in good repair.

As regards the energy requirements it is generally assumed that the needs of the average man are satisfied by an intake of food equivalent to 3,000 calories. Not so many years ago the figure of 3,500 calories, put forward by Atwater in opposition to that propounded by the founder of scientific nutrition, Carl Voit, was held to be the standard by which all energy intake should be measured. But when one comes to examine the data on which the Atwater standard is founded it is discovered to be a simple assumption. Thus we find in Atwater's much quoted, but little read, Storr's report these sentences: Unquestionably we eat a gread deal more than we need but it would be hard to believe that food with 3,055 calories (Voit) of potential energy per day . . . would suffice for men who live and work and earn wages as do the labouring people in Massachusetts and Connecticut . . . whose food including that which is so lavishly wasted is estimated at from 4,400 to 4,660 calories per day. "I have assumed 125 grammes protein and 3,500 calories of energy as appropriate for a man at moderate muscular work." There is reason to believe that even an allowance of 3,000 calories errs on the side of generosity as with the steady increases in the use of automatic and semi-automatic machinery the number of men who are called upon to expend serious muscular effort is steadily diminishing. What is required in most forms of industry to-day is alertness rather than brawn. It is difficult for another reason to lay down any definite figure as there is some evidence to show that there is a direct connection between the required energy intake and the quality of the diet, the better the quality the smaller the intake. Thus do our standards, even in the relatively simple matter of energy, undergo change.

As regards the materials requisite for the supply of this needed energy we depend in the main on fats and carbohydrates (starches and sugar). No attempt has been made to lay down the standard requirement of carbohydrates as it is not required and should never, except in the last resort, be attempted. They are our cheapest and most readily available source of energy and form a kind of "elastic reserve," the material available for the give and take of ordinary everyday demand. As regards fat the

Technical Commission on Nutrition of the League of Nations hesitated long before they suggested very tentatively that a fat intake of from 80 to 125 grammes would suffice. On the other hand v. Pirquet went so far as to state that fat was not an essential constituent of a diet. Generally speaking in this country we find increasing consumption of fat with rising income. Also, that the heavier the work the man has to perform the greater is his demand for fat. But fat does more in the organism than merely supply its quota of energy as it serves as carrier for three of the vitamins two of which, at least, are essential for the welfare of the organism. Moreover some of the unsaturated fatty acids found in fat would appear to be requisite for growth.

The third potential energy-giving constituent is protein. Although there is no question about the fact that protein can yield energy its main function is to act as *the* source of the essential nitrogen. Despite the fact that we live in an atmosphere four-fifths of which is nitrogen, the nitrogen required by the cells can, except perhaps in minute amount, only be supplied by protein. Protein also serves as the principal source of the sulphur which is required by the tissues and also for a certain amount of the phosphorus. Protein then is a key substance. How much and in what form should it be supplied? As regards the quantity here again in recent time there has been a change in the standard. Voit estimated that the intake should be 118 grammes. Atwater, in the citation I have already quoted, assumed that the Voit value was too low and raised the figure to 125 grammes. The Technical Commission on Nutrition of the League of Nations were unanimous that the needs of the adult organism could be satisfied by an intake of 1 gramme per kilo body weight, say, for the average man, about 70 grammes per diem. A very substantial reduction. What about the quality of the protein? All proteins are not of equal value to the organism. The difference in value between the various proteins lies in their amino acid make up. Those proteins, mainly of animal origin, like meat, white of egg, which most closely approximate in composition to tissue protein are often referred to as first-class proteins. Sometimes they are also spoken of as proteins of high biological value. It is perhaps not generally realised that this biological value is not a constant or fixed value but that it varies with the amount of protein present in the diet. Thus it has been shown that liver protein at a level of 8 per cent. in the diet has a biological value of 77 while at a level of 16 per cent. its biological value drops to 58. Quite apart from the individual biological value it has been shown that a supplementary action can also come into play. If beef protein with a biological value of 69 be combined with flour proteins with a biological value of 35, in the proportion of 1 to 2, the combination possesses a biological value of 73, a value higher than that of beef itself. This supplementary action affords full justification for the insistence on the value of a good mixed diet.

There is absolutely no doubt that in principle the recommendation that all diets should include, if possible, a certain amount of first-class protein is sound. But at the same time no one can say how much of such protein should be present in the average diet. Even in the diets of the poor, which we have examined, it is rare to find one in which animal protein forms less than 30 per cent. of the total protein. Terroine, one of the active workers in the field of protein metabolism, although he admits that proteins of animal origin (meat, viscera, milk, eggs) take precedence over those of vegetable origin (legumes, cereals) states very definitely that the inclusion of such first-class proteins is not necessary in the average diet. This position is the same as that adopted by the extreme vegetarians and as many of these lead apparently healthy lives Terroine's contention must be accepted as sound. Terroine, however, admits that in cases where the diet is poor in protein it may be useful to include some animal protein. This brings us up against that age-long debate as to whether meat as such is required in the diet and if so how much. There is no question about the fact that men who have to perform hard muscular work usually demand meat in their diets. The great majority of training diets, too, are rich in meat. An investigation into the consumption of protein, in the form of meat, by the athletes assembled at Berlin for the Olympic games there in 1936, showed that, with very few exceptions and these religious, these athletes from 42 different countries consumed large amounts of animal protein, generally as beef. And yet there is no scientific evidence to show that the intake of meat is required for the performance of hard muscular work. Why then is it demanded? It must not be forgotten in this connection that lacto-vegetarian athletes have shown that they also have very great powers of endurance.

We hear to-day a good deal about the protective foods or materials, *i.e.*, substances which must be present in an adequate diet. It seems to be generally assumed that such substances or foodstuffs are, in the main, milk, green vegetables and fruit, more especially citrus fruits. In a country like our own such sources are probably, generally speaking, correct. But it must not be forgotten the term has a much wider implication. In an area, for example, where the principal components of the staple diet are white bread, sugar and muscle (meat) the most important protective foods would

undoubtedly be milk and green leafy vegetables, whereas, on the other hand, when the diet is low in protein, or contains protein of poor quality, then it is obvious that meat or milk will be the protective food required. In the report of the Technical Commission on Nutrition of the League of Nations the question is dealt with and a broad definition given thus: "Among the protective foods are first and foremost milk and milk products (including butter), eggs and glandular tissues, then green leafy vegetables, fruit, fat, fish, and meat (muscle). Among the energy-bearing foods of little or no protective power are sugars, milled cereals and certain fats."

The reason why milk, vegetables and fruits take such a high place amongst the protective foodstuffs is, of course, that, in addition to their being ordinary energy-giving materials, they are the most important sources of mineral salts and vitamins. We now know a considerable amount about the qualitative action of both minerals and vitamins but on the quantitative side our information is sadly defective. We know that a large number of mineral salts play an intimate rôle in proper nutrition although, at the present time, we cannot, in many instances, define exactly these activities. About certain of the mineral substances we do have more information. Thus, we know that calcium is essential not only for the upbuilding of bone but for certain other tissue responses. But the amount of calcium utilised seems to depend, in part, on the amount of phosphorus and of vitamin D present in the food. We know that iron is required for the proper formation of haemoglobin but there is good evidence to show that the presence of a minute trace of copper plays a critical part in the process. It is not only that these salts are necessary for structural activities but they are also concerned with one of the most vital phases of physiological equilibrium, the maintenance of the acid-base balance. Unless this balance is maintained within the narrowest of limits there is readily engendered a state of malnutrition. In the case of the vitamins our difficulties are even greater because our fundamental facts and our methods of detection and assay are on a less secure foundation. We know that certain vitamins are required: A, the B complex, C, D (probably a complex) and possibly others, but how much, under ordinary conditions of living, is required of each of these vitamins is not yet firmly established. When one finds assays by different workers of the content of, let us say, vitamin A in unit weight of a food material like liver, as given in the Fixsen-Roscoe Tables, ranging from 6,700 international units to 113,100 it is impossible to come to any final conclusion. One thing I think is certain and that is that it is best to ingest our supply of vitamins in the form nature provides.

Diets do not require to be elaborate in order to supply the essentials as we know them to-day. A diet made up of brown bread, butter, cheese, milk, vegetables and fruit would suffice to provide all the essential items. Of these food materials dairy products and more especially milk, hold almost a unique place. Milk with its "first-class" protein, its mixture of fatty acids, saturated and unsaturated, a carbohydrate which would seem to be of special importance for the young, its richness in calcium and other essential minerals and its fair selection of the vitamins, renders it a remarkable nutrient. But the slogan "Drink more Milk" ought to read "Drink more Safe Milk."

It may be a dangerous topic to touch upon but the milk ought to be safe and safety can only be attained by effective pasteurisation. Why should the sale of unsafe milk be permitted? The elimination of tuberculosis from the dairy herds will not, of necessity, provide safe milk. I do not understand the outcry against pasteurisation. There is ample evidence to show that pasteurisation does not reduce materially the food value of milk. There may be some destruction of vitamin C but comparable destruction will follow exposure of the milk bottle to the sun, by leaving it on the doorstep on a sunny morning. If there be any loss in value that loss is more than compensated for by the rendering of the milk safe. The Committee of the Economic Advisory Council on Cattle Diseases stated in their report that "The evidence available to-day leaves the conviction that any recognisable changes of quality induced in milk by pasteurisation, rightly conducted, are too small to outweigh the great advantage inherent in the protection from infection which the treatment secures and in the public confidence it inspires. It is sometimes suggested that there may be subtle changes not revealed in the state of present knowledge, but policy should not be influenced by vague possibilities which established evidence makes improbable." I believe, moreover, that the great majority of the medical profession would endorse this conclusion. One of the anomalies associated with the almost universal belief in the value of milk is the difficulty of proving that the addition of milk to an ordinary mixed diet is beneficial. Increases in height and weight have, for instance, in the recent experiment on school children not been marked. An increase of one-tenth of an inch in height and less than a pound in weight in school children receiving as an extra two-thirds of a pint of whole raw milk per diem over control children who received no extra milk is not dramatic. It is simply another proof, if another proof be required,

that an objective measurement of this type does not provide a conclusive answer.

My intention has been to stress the difficulty, if not the impossibility, of laying down, with our present knowledge, hard and fast quantitative standards suitable for all. There is a tendency abroad to exploit standards and, what is infinitely more serious, to exploit monetary standards. No matter how careful scientific people are to state that results are tentative and not final, that values are relative not absolute, the public and the public Press broadcast these results as absolute and final. Quite apart from the fact, as I maintain, that at the present juncture any pronouncements must be most tentative is the fact that prices, of even the common foodstuffs, are not uniform throughout the country. A few years ago, for another purpose, I tested this difficulty. On a given day at a given hour I had collected for me the lowest retail prices of a number of the commoner articles of diet in 35 different centres, cities, small towns and villages, in Scotland. The following table, the figures are cost in pence per lb., shows the tremendous variation in prices:—

RANGE IN LOWEST RETAIL PRICES ON A GIVEN DATE IN MARCH, 1935, IN 35 CENTRES IN SCOTLAND

Commodity	*Price range in pence per lb.*	*Cost in A*	*B*	*C*
Butter	10—16	10	16	12
Margarine	3½—8	4	6	6
Jam	3—8½	3	4¼	7
Tea	10—28	16	24	20
Mutton	6—16	6	12	14
Beef	4—14	4	10	12
Bacon	8—18	9	14	12
Sausages	5—12	5	8	12
Mince	3½—16	3½	12	16
Cheese	4—11	4	9	11
Potatoes (stone) ...	4½—10	5	6,	5

Bread, flour, sugar, milk are not included in the table as there was little variation in the prices.

A = a city; B = a village about 20 miles from A, and C = a small county town.

These figures demonstrate the difficulty, if not the impossibility, of laying down anything like a standard cost, especially in face of the further fact that there is no uniformity in the likes and dislikes concerning foods throughout the country.

And finally there is the question of what is done with the material purchased. It is not the amount of money which is spent on food which counts but what is bought and how the purchased material is utilised. Andrewe Boorde, some 400 years ago, wrote in his Dyetary of Health, "God may send a man good meat but the devil may send an evil cook to destroy it." Even if everyone had a sufficiency of income to buy the perfect food materials for the ideal diet a subsequent survey would surely disclose a great deal of faulty utilisation. Education is very badly required. The art of housekeeping on a small income is a desperately difficult art. Education on how to spend and how to make the best use of the available foodstuffs is essential. Even amongst those, for example, who are supposed to be able to appreciate the value of milk there is room for education as is shown by the very interesting survey made by K. A. H. Murray at Oxford. He writes: "The existence of wide variations in the purchases of milk between households with similar food expenditures suggests that milk consumption could be doubled without raising income levels if the consumer can be induced to do it." "The difficulties in the way of increasing the consumption of milk are partly lack of purchasing power and distaste but possibly the biggest obstacles are antipathy, indifference and prejudice." Very much the same conclusion was reached in the enquiry conducted by M. J. Carlton-Smith and O. J. Beilby in an industrial area in Durham. They found the same variation in milk consumption at the same income level and they conclude that "differences in income are by no means the main reasons for differences between households in the amount of milk purchased."

Man where his food is concerned is very conservative. Either because of tradition or laziness or fear of the unknown he is very loath to change his dietary habits. Reformers may gird at this lethargy whatever be the cause. But despite the slowness the dietary habits are changing for the better. The statement in the first report of the Advisory Committee on Nutrition that "the diet of the people is now more in conformity with physiological principles than it was in pre-War years" is true. We had proof of this in Glasgow in two studies carried out on very much the same type of family in 1911 and in 1933. Egg and cheese consumption were both up. Oatmeal alas! was definitely down but there was a rise in the consumption of root vegetables and a very definite rise in that of leafy vegetables. Fresh fruit was eaten by 75 per cent. of the 1933 families and none by those of 1911. There was little change in the consumption of fresh milk. In 1911 39·8 per cent. of the protein eaten was in "first class" form, by 1933 it had risen to 45·5 per cent. These are most encouraging figures.

The question of fundamental importance before this Conference is not, in my opinion, the attempt to lay down standards which must, in the very nature of things, be mutable but to

study the means by which the slow change in the dietary habit of the people can be most usefully accelerated.

. . . . .

Resolution

At the end of the Conference the following resolution was unanimously adopted:

"This Conference called by the British Medical Association and composed of representatives of medicine, agriculture at home and overseas, industry, and education, is deeply impressed with the importance of nutrition to the national welfare. It urges upon the Government the formulation of a long-term food policy in which the requirements of health, agriculture, and industry shall be considered in mutual relation. It is convinced that measures to secure the more ready availability to all sections of the community of foodstuffs which are held to be desirable on nutritional grounds should be accompanied by an educational campaign to encourage their increased consumption."

INTERNATIONAL STANDARDISATION OF SEX HORMONES

"Under the somewhat alarming name 'Chorionic Gonadotrophin,' the Health Organisation of the League of Nations have issued a description of the gonadotrophic substance which is present in human urine in pregnancy and for which they have now set up an international standard," writes "Onlooker" in the *Pharmaceutical Journal*. "Apparently the decision to adopt standards for the recognised hormones of the anterior lobe of the pituitary gland and for analogous principles found in urine or blood serum was taken at a meeting of the Third International Conference on the Standardisation of Hormones, held at Geneva in August, 1938, and attended by delegates of five different countries, Great Britain being represented by five members of the National Institute for Medical Research. Consideration was given at the meeting to the desirability and practicability of introducing standards for the thyrotrophic and lactogenic substances of the anterior pituitary lobe, the gonadotrophic principles present in the serum of pregnant mares, as well as the gonadotrophic principle in human pregnancy urine. Up to the present time only the last-mentioned standard has been published, but I am told that standards for other principles will shortly be available. When they are issued most of the known so-called sex hormones will be standardised on an agreed basis, and, in my opinion, it will be the duty of pharmacists to encourage prescribers to order products the potency of which is expressed in international units. From a national point of view it is of interest to note that, in common with the international standards for other hormones, vitamins, etc., the standard for the anterior-pituitary-like hormones from pregnancy urine is held on behalf of the League of Nations at the National Institute for Research, Hampstead."

The Veterinary Record

June 10th, 1939.

Nutrition and Disease: A Re-orientation in Outlook

THIS week we publish an account of the contribution which the profession makes and seeks to make toward national nutrition. It is written primarily for others who are not intimately acquainted with veterinary activities, but we commend it to our readers particularly since it clarifies the re-orientation of attitude toward disease which is developing so notably.

In the animal world, where intellectual pursuits do not enter, health and efficiency are virtually inseparable. The purpose of domestication of livestock is to subordinate them and their products to the needs of man, and so, when we direct our energies to securing the health of animals as an end in itself, we are serving humanity. There is the narrow field of prevention of the transmission of infectious animal disease to man and the wider field of maintaining that degree of animal health which will permit the continuance of productivity at a high level. In these, all practising veterinary surgeons are engaged.

The first reaction to the discovery of bacteria as a cause of disease was to follow the military maxim, seek out the enemy and destroy him. The second was to increase the defence of the animal organism by artificial means. Now, however, it is evident that in relation to many diseases a properly nourished cell has natural powers of resistance which are not possessed by that which has been inadequately nurtured —a conception which brings the physiologist into direct partnership with the bacteriologist (it is admitted that there is a not inconsiderable group of diseases — notably virus diseases — in which the converse is true). Translation of the tenets of physiology into practice is embodied in animal husbandry which has been given such prominence of late as the true basis of a veterinary training. In order of importance we conceive our functions to be the promotion and conservation of health first, the prevention of specific disease second, and the cure of illness third. This the positive policy against disease and, as Professor Miller said, ". . . the veterinarian who does not have to spend a very considerable portion of his

daily working time in advising upon the achievement and maintenance of health and upon the prevention of disease cannot regard himself as other than archaic."

During a quarter of a century there has been enormous progress from the concept of nutrition assessed in calories. The chemist can claim that, from his point of view, the end of the vitamin study is within measurable distance. The importance of trace elements is realised and the hormone field is becoming clearer. Quality in food constituents has modified computations of quantity and balance is recognised as more significant than mass. The agriculturist has not been slow to apply the new doctrines. Levels of production of meat, milk and eggs have risen considerably—a notable contribution to national nutrition. But we would underline Professor Miller's warning: "However attractive the ephemeral fame of breaking or holding a production record may be, it is more than cancelled by the consequential harm...." Agricultural shows, milk-recording and egg-laying trials have immense value, but the attendant forcing of production introduces hazards which must not be overlooked. Agriculture will always constitute an art and a science subjected to a number of uncontrollable variables, rendering it infinitely more complex than the ordinary commercial enterprise. British agriculture is affected greatly by international trade conditions and political considerations, and the farmer cannot be blamed for taking advantage of favourable markets for purchase of his raw material or sale of his products. But the gravity of the danger to livestock in too great refinement of diet and restriction of physical effort, for the sake of enhanced production, is already being manifested. The maximum is not the optimum and we endorse the counsel of moderation and some return to natural methods for which the soil and climate of the country offer peculiar facilities. The grassland of Britain is a great natural resource and grass is the principal protective food for animals, as milk is for man.

A conference has been held between representatives of the British X-ray and Radium Protection Committee, King Edward's Hospital Fund for London, the Ministry of Health, and the National Radium Commission, to consider the question of the storage of radium in time of war. The National Radium Commission is compiling a register of owners and holders of radium, with a view to satisfactory arrangements being made. The Commission earnestly requests all persons who have radium in their custody or possession to notify the Commission stating the amount of radium held.

CLINICAL COMMUNICATION

Division of the Superficial Flexor Tendon in the Dog

R. W. CROWTHER and H. A. KING
HARROW

Subject.—A mongrel terrier bitch, Sealyham type. Aged eight years. Weight 23 lb.

History.—Over three weeks previously the dog had been out during the frosty weather when the thin ice was on the ponds and had returned with a severe cut on the back of its near hind leg, of unknown origin. The incision was transverse and in the mid-metatarsal region and at the time had been sutured by the owner. On February 3rd when the dog was first brought in cicatrisation was complete.

Symptoms.—As stated, there was a scar at the original site and the dog was walking on the back of its pad and on the skin immediately behind. It was unable to flex its foot voluntarily and since full weight was now placed on the leg, the skin had become very abrased.

Diagnosis.—Section of the flexor tendons, probably confined to the perforatus.

Prognosis.—Very guarded, in view of the time which had elapsed since the injury.

Treatment.—Since the owner did not at the time wish to have the dog operated upon, a reinforced boot was tried, until this was found also to produce chafing, and an operation was once more considered.

On February 13th, the dog was anaesthetised by 4½ grains nembutal intravenously (1/5 grain per lb.) and a tourniquet applied above the hock. A longitudinal incision about two and-a-half inches long was then made down the posterior of the metatarsal region at right angles to the original injury. Having separated the skin from the underlying tissues and spread the incision, the four divisions of the perforatus were dissected out. It was found that the ends had separated about one-third of an inch and had tended to curl inwards. The deep flexor appeared intact.

Each individual branch was freed from its fibrous attachments by dissecting backwards for about one-third of an inch until it appeared to move freely. The corresponding branch was also freed and the two ends drawn into apposition by a single gut suture while holding the foot flexed. (Gut No. 0 chromic—ten to 20 days.) Having thus drawn together all four branches of the superficial flexor, the skin wound was closed with interrupted silk sutures (No. 3).

A strong cellona plaster cast of about eight to ten thicknesses was then adapted to the

anterior surface of the foot and metatarsal region as far upwards as the hock, keeping the foot flexed. The skin wound was protected by a pad of gauze and a bandage, and healed by first intention, the sutures being removed on the fifth day.

After ten days, gentle massage was applied over the site of union, and the cast removed daily for a few minutes, to allow passive movements of the toes to be made. This was continued until on March 10th, 25 days after the operation, when the cast was removed and replaced by an elastic supporting bandage. From that date progressive use was made of the leg, until by the end of the month normal function had been regained. When last seen on April 17th the only abnormality observed was a slight stiffness in the early mornings.

Conclusion.—Although the writers have not encountered a similar case before, they feel that it must be of fairly common occurrence in canine practice. The main object in recording this case is to indicate that it is possible to unite this tendon successfully when it has been divided for 30 days, and when cicatricial tissue has enveloped the severed ends and surrounding tissues.

It may be of interest to note two points connected with this type of injury.

(1) If a freshly killed dog be taken and on one leg the superficial flexor tendons are cut, a definite relaxing of the toes will be obvious, even when the hock be fixed. If all the flexors are severed on the opposite leg the relaxation is even more pronounced. It is considered, however, that it would be a matter of some difficulty to distinguish between the two in the dog if the diagnosis were based upon loss of function alone.

(2) The four branches of the superficial flexor are relatively delicate and are given off in the upper third of the metatarsal region, the thickness of each branch being, in a terrier, equal to that of a split matchstick. The deep flexor, however, does not divide until in the most distal third of the metatarsus and in consequence for most of its course it appears as a broad tendinous band rather embedded in the small muscles of that region. It is inferred that if the flexors were in a state of tension, a blow from a sharp object might readily sever the superficial flexor tendons, but that in many cases the deep flexor would escape serious injury on account of its strength and position.

Speaking at the luncheon of the Liverpool May Horse Parade Committee, Mr. W. J. Cumber said that in a test of moving soil a distance of from a mile to a mile and a half, horse labour proved to be 40 per cent. cheaper than mechanical labour.

REVIEWS

[Tuberculin Tests in Cattle. Agricultural Research Council Special Report Series No. 4. pp. v. + 94. H.M. Stationery Office. Price 1s. 6d., postage extra.]

This is a record of work carried out by Professor J. B. Buxton and Mr. R. E. Glover at the Institute of Animal Pathology, Cambridge, on the purification and improvement of tuberculin and, at the suggestion of the Joint Tuberculosis Committee of the Medical and Agricultural Research Councils, on certain aspects of the double intradermal test in cattle —which test is considered almost exclusively.

In the preface it is noted that: "Unfortunately, at the present time there is no recognised 'standard' tuberculin for cattle and there is no uniformity in the tests which are applied for the determination of the potency of such tuberculins. It is especially desirable, therefore, that steps should be taken to devise a standard tuberculin which will meet with general approval." The present report, however, does not carry this matter further, for the question of standardisation and potency does not figure among the nine headings under which the authors group their series of experiments. Although the first of these is the relative merits of the various tests, this matter is dealt with only in a general way. One would conclude that the authors are satisfied that the double intradermal test introduced by the Tuberculin Committee of the Medical Research Council has proved the most suitable.

The section on old tuberculin and synthetic medium tuberculin is a valuable review and a record of much painstaking work. It should remove the last doubts as to the suitability and advantages of tuberculins prepared on a synthetic medium. P.P.D. is mentioned but the preparation of this tuberculin is regarded as a complicated and expensive process and the opinion is voiced that, "On economical grounds alone, therefore, it is unlikely that these highly purified products would prove acceptable for bovine use unless they could be shown to possess a very marked superiority over the simpler and less expensive preparations." Some may contest this, for it is now understood that P.P.D. can be produced on a large scale at no very materially increased cost and, in any case, the cost of the tuberculin is not the major economic item in the testing of cattle. It is unfortunate that so little double intradermal testing with synthetic medium tuberculin has been followed up by *post-mortem* examination and that the estimate of its accuracy has to depend so largely on general experience.

The necessity of having animals of suitable sensitivity has led to the employment of a large

proportion of B.C.G. vaccinated, rather than naturally infected, cattle in the experiments recorded in this report.

The sections dealing with the sensitisation and desensitisation of the skin of cattle are of particular interest. An increased sensitivity to tuberculin following the primary injection may extend to even three inches around the needle track, particularly in highly responsive cattle, and continue to exist for even one week. Between the second and the fourth week this area may be definitely desensitised and full ability to respond to tuberculin may only be regained after about six weeks. This work emphasises the necessity to choose a site at least six inches from that of the previous test when an animal has to be retested within a period of a few weeks.

It is shown that it is almost impossible to "dope" animals against the intradermal test by the intravenous or subcutaneous injection of tuberculin. It also appeared difficult to desensitise the caudal fold by a prior injection of tuberculin, either intradermally or subcutaneously, in that region. The intravenous injection of tuberculin does not enhance the intradermal reaction of animals of low sensitivity.

It is clearly demonstrated that unheated tuberculin possesses the property, after a few injections, of causing a positive response in clean cattle and that such undenatured tuberculin must not be used for cattle testing.

The final section deals with the sensitisation of cattle to mammalian tuberculin as the result of infection with organisms other than the bovine tubercle bacillus. In these experiments the following organisms, injected subcutaneously in an oily vehicle, did not sensitise: *C. pyogenes*, *C. Preisz-Nocard*, *Actinomyces bovis*, *Actinobacillus* and *M. phlei*. *Br. abortus* injected in similar fashion appeared to give rise to some sensitivity in three of the seven animals but one of them was found, on *post-mortem* examination, to be affected with avian tuberculosis. Subcutaneous injection of this organism in saline suspension gave rise to an early transient sensitivity in three of seven cattle but intravenous injection did not sensitise either of two animals.

The subcutaneous injections of the bacillus of Johne's disease and of the avian tubercle bacillus produced similar sensitisation, the animals reacting to mammalian tuberculin while the allergic state to the homologous product was high. Later the reaction to tuberculin decreased or even disappeared as the specific sensitivity fell. In four animals, infected by the mouth with the avian bacillus, the organism was recovered in only one instance, and it was only in this case that the sensitivity to mammalian tuberculin was other than transitory, while that to avian tuberculin was more persistent.

There are several charts and tables illustrating the findings in the various sections and two appendices give details of the testing of groups of the experimental animals.

The report should be in the hands of every member of the profession who is engaged in the tuberculin testing of cattle, for it is a valuable review of certain aspects of testing and a record of much carefully conducted work designed to aid the solution of some of the difficulties which do arise and are likely to be more frequent as the eradication of tuberculosis proceeds.

* * * * *

[Science and Nutrition. By A. L. Bacharach. Watts & Co., London. Price 2s. 6d. net.]

The aim of this little book is to impart an appreciation of the value of the scientific approach to the problems of nutrition and to this end the author has described, using the minimum of scientific terms, the kind of methods employed in the laboratory study of nutritional problems and the kind of knowledge obtained thereby. He has endeavoured "to put the reader in a position to apply some degree of scientific criticism to the many dietary proposals that are regularly to be found both in the lay Press and in the more technical journals."

After a preliminary section devoted to the use of experiments with animals, a fairly short section of 30 pages is devoted to the "classical" aspects of nutrition, namely, the chemistry and metabolism of fats, carbohydrates and proteins. The knowledge given is necessarily brief but nevertheless reliable. In spite of the fact that the field is covered in so few words, space is found for discussing certain present-day food fashions. Thus, on page 26, it states, "the physiological basis for consuming the various forms of breakfast cereal and rye-flour biscuit, as a less fattening alternative to white bread, seems to have a mystico-economic origin rather than an experimental one, except that these products contain indigestible roughage of a 'branny' nature. But in so far as they do, they will not satisfy hunger, which is then presumably appeased in other ways." In the chapters on proteins the essentials of the recent views on "good" and "poor" proteins, together with the important "supplementary action" when they are fed together, are admirably given.

Similar short chapters are devoted to the minerals, the hormones (from the point of view of nutritional requirements) and "trace

elements." These are followed by chapters of some 50 pages on "the vitamins." This arrangement would seem to be out of proportion were it not for the fact that the author utilises these important nutritional factors to illustrate his main thesis.

After reading the book throughout one has the feeling that the vitamins have been overstressed and yet it must be admitted that this section is both illuminating and valuable and that it is practically impossible to recommend any specific reduction to it. Another admirable feature of this section is its restrained tenor. Despite the fact that the author is a vitamin specialist he does not overstress their claims and in fact he takes considerable care to emphasise the importance of caution.

Two final, but brief, chapters dealing comprehensively with human nutrition, in their succinct statement upon the need for "optimal" as opposed to "minimal" diets are excellent.

The book can be recommended as a useful addition to the extensive library on nutrition, particularly as an excellent introduction to the problems of nutrition, not only for the general public, but also for members of the veterinary and the medical professions.

PATENT MEDICINE ADVERTISEMENTS

Arising out of a report by their Proprietary Medicine Committee, the Advertising Association recommend (*a*) that advertisements in which claims are made, either directly or by implication, to *cure or relieve* the following ailments should be banned:—

Bright's disease	Fits
Cancer	Locomotor ataxy
Tuberculosis or Consumption	Lupus
Diabetes	Osteo-arthritis
Disseminated sclerosis	Paralysis
Epilepsy	

(*b*) That advertisements which include or imply claims to *cure, banish or conquer* the following ailments should be banned:—

Hernia or rupture
Rheumatoid arthritis
Any structural or organic ailment of the auditory or optical system.

(*c*) That advertisements should be rejected which offer to diagnose by correspondence diseased conditions, or any particular diseased conditions in a human being, or to receive from any person a statement of his or any other person's symptoms of ill-health with a view to advising as to or providing for the treatment of such ill-health by correspondence; or which offer to treat by correspondence any of the ailments specified in paragraphs (*a*) and (*b*).

With regard to advertisements of remedies for asthma, the Committee recommend that any statement which is calculated to lead the reader to believe that a permanent cure for asthma can be effected should be removed from the copy. It is found that three companies have incorporated the word "cure" in their trade mark or trading name, but the Committee are satisfied that in the advertisements which they have seen of such companies no claims to effect a permanent cure are made.—*Pharm J.*

ANNOTATION

The Nature of Navicular Disease

It is probable that the majority of British veterinary practitioners accept the theory of our experienced colleague Major Oxspring that the primary seat of this disease is the subarticular bony tissue of the navicular bone. This opinion was arrived at from a study of 128 feet from affected horses and it was stated that rarefying ostitis was observed in sections of the bone of horses which did not at the time show clinical evidence of the disease. In view of this assertion it is refreshing to report conflicting opinions from three German colleagues who by reason of their professional standing and special experience have good claims to be heard with respect. These workers are Dr. Duenemann, Professor Westhues, and Professor Wittmann. Duenemann was chiefly concerned with diagnosis and his views were given in an abstract appearing in the *Veterinary Record* of January 29th, 1938. Wittmann was considering the sites of origin of lameness associated with bone diseases of the limbs and his belief that exostosis on the site of insertion of the suspensory ligament of the navicular bone is the cause of the lameness is mentioned in an abstract in the *Record* of March 25th, 1939.

Now we come to the *pièce de résistance*, namely, Professor Westhues's recent article.* This is a most interesting and well-illustrated work, which is based on many years' clinical and experimental study of the disease and also on routine examination of the feet (dissection) of all horse carcases sent to the veterinary school at Munich as operation practice material for students. Westhues has found that the podotrochlea (by which term we may denote the bone, bursa and overlying terminal part of the deep flexor tendon) shows definite macroscopical changes in an average of about 80 per cent. of all riding horses between 15 and 20 years old. These changes are limited to the fore feet and are usually bilateral and exist in horses which are not lame.

Changes in the podotrochlea develop in this way: the tendinous part of the podotrochlea is normally glistening and has a bluish tint; the first perceptible change is the loss of this tint over the central area which faces the navicular ridge. Yellow discoloration replaces it and the fibres of the tendon protude from the surface, giving it a rough feeling. Analogous changes

*Westhues. 1938. Nature, Diagnosis and Treatment of Navicular Disease. (Trans. title.) *Berl. Münch. tierärztl. Wschr.* 51 and 52, pp. 781-5 and 797-802.

occur to the bone, but they are usually less intense than those of the tendon. These tendon changes always occur first and the converse has never been noticed by Westhues. Histological cross-sections of the tendon at an early stage of navicular disease show a loss of nuclei in a zone under the surface and there may be fatty infiltration here or even a cartilaginous metamorphosis. Below this zone there is a sign of inflammation, with large cells much greater than the normal connective tissue cells of the part. The next stage—rupture of tendon fibres—is, of course, clearly evident. The same process occurs in the bone, starting from the surface, and it is not until surface defects in the articular cartilage actually penetrate the thickness of the cartilage that the bone below shows signs of being involved. When that does happen a rarefying ostitis results.

Westhues defines the first stage of surface attack as a podotrochlosis, which is degenerative and not inflammatory in character. This is a most important point and the base on which his theory stands, and it has plenty of support on the human pathology side. For instance, Professor Boyd, of Toronto University, in his well-known book on Surgical Pathology (fourth edition, 1938) describes osteoarthritis in the same way. He says that it is degenerative, that trauma is probably the cause and that there is no relation between the extent of the lesion and the symptoms referable to the joint. The articular cartilage degenerates, the cartilage cells swell and break down and the connective tissue fibres are laid bare and gradually become worn away, until the underlying bone becames exposed. The absence of pain in osteoarthritis is due to the absence of nerves in the articular cartilage, and Westhues says that this also applies to the part of the deep flexor tendon over the navicular bone "to a depth of several millimetres." Westhues believes that the exciting cause of navicular disease is excessive pressure on the parts and he suggests that an hereditary predisposition may play a part. It seems more likely, or at least additionally likely, that nutrition is of importance, as has been suggested by Mitchell in connection with equine osteoarthritis in general and as is at present the subject of research under the auspices of the Agricultural Research Council. See also Dr. Edwards's review on vitamin A deficiency in the *Journal of the Royal Army Veterinary Corps*, Vol. 9, Nos. 1 and 2, 1937.

[It seems that the term osteoarthrosis would be more suitable than "osteoarthritis," as used by Boyd above: it might also be considered better than the term "rheumatic disease."]

Lameness from navicular disease comes on when the surface defect is advanced and when the deeper bone and tendon have become involved. It is agreed that exostosis often occurs during the disease, and, whilst Wittmann incriminates it as the actual cause of lameness, Westhues says that it may or may not be, for he possesses the navicular bones with exostosis of many horses which had never been lame from navicular disease before death. He has never seen a case of the disease in which exostosis existed without a simultaneous surface defect.

Diagnosis. — There are three interesting things to say about this section of Westhues's paper: the first concerns nerve block, the second pedal joint anaesthesia and the third X-ray diagnosis.

1. If one desires to anaesthetise the foot including the skin and laminar matrix it is necessary to block the volar nerves above the level of the fetlock. Nerve block lower down may leave these tissues aesthetic.

2. Westhues says that an anaesthetic injection into the pedal joint [see note at the end of the abstract of Duenemann's paper] will often spread beyond the joint and act on the navicular bursa as well, but Westhues makes his injections under great pressure and always tries to inject the large amount of 20 c.c. As, however, the result with regard to the navicular bursa is uncertain this method cannot be exclusively recommended for the diagnosis of navicular disease.

3. Westhues's experience over nearly 20 years with latero-medial exposures is that the method is almost useless. Oxspring's dorso-volar method is praised as a great advance, but it is pointed out how great a confusion is caused by the appearance of the nutrient foramina; for instance, Westhues has seen very large nutrient foramina simulating the cavity formation of navicular disease in old sound horses and he has seen cases of navicular disease without any discernible change in the bone. He concludes that diagnosis is very difficult and that one ought to use every method available, it being important to repeat the X-ray method after a certain period.

Treatment.—There is no satisfactory cure, but something may be done to make the horse capable of work for a time of unpredictable duration. Westhues has resorted chiefly to neurectomy and he treated twelve horses bilaterally and eleven unilaterally by resection of a part of the volar branch of the volar nerve in the middle of the pastern. Results were on the whole good, most cases being used successfully for fast work for a period extending up to the present time (maximum, two years). A few of the horses went sound for a time and became lame again from navicular disease and one or two of these were submitted to neurectomy of the volar nerves on the fetlock joint just below the origin of the dorsal

ABSTRACTS

[Renal Function as affected by Experimental Unilateral Kidney Lesions. Nicholson, T. F., Urquhart, R. W. I., Selby, M. D. *J. Exp. Med.* **68.** 3. 439-456. 1 plate with 2 figs., 5 tables, 6 text figs. (18 refs.).]

The method described by Nicholson, Urquhart, and Murray of perfusing one kidney without interfering with the general circulation was employed to induce unilateral nephrosis of a number of bitches. The perfusing fluid was 7·5 per cent. sodium tartrate. The method ensures that practically all the degenerative changes occur in the proximal convoluted tubules, the glomeruli being unaffected.

Various studies were undertaken on the damaged kidney, the undamaged one affording an efficient control.

Estimation of a number of clearances showed that in general the damaged kidney had a lower clearance rate than the normal. Urea, xylose, inulin, creatinine, and phenol red clearances all showed a decrease, and water and chloride excretion were disturbed.

A number of conclusions are reached. The finding of excreted ferrocyanide in the proximal tubules of the damaged kidney, and not in the normal one, is taken as evidence of back diffusion through damaged cells. Decreased clearance of creatinine and inulin, which represent glomerular filtrate in the dog, can be explained by back diffusion, and may not necessarily be due to glomerular change. Phenol red clearance is diminished in relation to inulin. This is evidence of depressed tubular activity. D. D. O.

* * * * *

[Pathological Findings among Pigs experimentally infected with Fasciolopsis Buskii. Kau, L. S., Wu, K. *Ann. Trop. Med. and Parasit.* **32.** 2. 133-136. (1 plate with 2 figs.).]

Pigs were fed with cysts of *Fasciolopsis buskii* from water caltrops, and later autopsied. Gross changes were detected in the gastro-intestinal tract, and were confined mainly to the duodenum and jejunum.

Minute petechiae, congested patches, and oedema were noted, but no definite mucosal erosions were seen.

Generally there was passive congestion of the heart, lungs, liver, spleen, pancreas, and kidneys, and the mesenteric lymph nodes were enlarged and congested.

Microscopic examination confirmed the observation that in general the tissue damage caused by the parasites was slight. D. D. O.

* * * * *

[Brucellosis in Swine. Thomsen, Axel. (1936.) *Deuts. tierärztl. Wschr.* 48. 805-808.]

This is an interesting general article relating to brucellosis in the pig which the author had ample opportunity of studying during the severe epizoötic which broke out in Denmark in 1929 and involved no less than 240 premises.

The methods of control depended first and foremost on the detection of affected animals by the combined use of the agglutination test and the complement fixation test. In the former instance a dilution of 1/50 was regarded as diagnostic of infection.

An examination of the genitalia of a large number of boars showed pathological changes to be frequent but that the organism might be present in the absence of these. The male in consequence is a potent source of infection.

N. S. B.

* * * * *

[Brucellosis in the Horse. Hieronymi, E. (1936.) *Deuts. tierärztl. Wschr.* 48. 808-810.]

Hieronymi favours the view that brucellosis in the horse is a primary condition in which fistulous withers and poll-evil are symptomatic. He points out that in the early stages *Br. abortus bovis*, the only type recorded in this connection, can be obtained in pure culture; horses showing no lesions rarely react to the agglutination test and when the lesion disappears the titre wanes rapidly. Further, whereas *O. cervicalis* is common in France, and 25·8 per cent. of horses are affected in Bulgaria, its presence is not recorded in the German literature. Figures are quoted illustrating the greater incidence of infection in horses on premises where brucellosis is rife amongst the cattle. Hieronymi believes the common means of infection to be *per os* and not *per cutis*.

N. S. B.

* * * * *

[Two Years' Observation on the Use of Atebrin as a Prophylactic Agent in Malaria. Hill, R. A., Goodman, M. H., Jun. *Amer. J. Trop. Med.* **18.** 4. 339-346. (6 tables. (2 refs.).]

Observations were made in a highly malarious area to determine whether drug prophylaxis would be effective in controlling the disease. Atebrin proved to be most successful. It reduced the blood parasite index from 16·9 per cent. to 0·3 per cent. in two years, was non-toxic, and was well tolerated. Quinine was helpful, but of less value. D. D. O.

---

branches, which supply the skin of the pastern and the hoof matrix. The results of this second intervention were good. Westhues's latest practice is to perform neurectomy at this level in the first instance, but the results cannot yet be assessed. In four cases resection of the end of the deep flexor tendon and curettage of the face of the navicular bone were carried out—with deplorable results.

N.V.M.A. DIVISIONAL REPORT

Derbyshire Veterinary Association*

DEMONSTRATIONS AT DERBY MEETING

A meeting of the above Division was held at the Nag's Head Hotel, Mickleover, Derby, on Friday, April 14th, 1939, at 2 p.m.

There were present: The President, Mr. W. J. Ironside, and Messrs. Lake, Cockburn, Wilkinson, Kochan, D. A. Lake, Bishop, Benbow, Eaton, Gregory, Briscoe, Kelly, Hunter, Buckingham, Burrow, Evershed, Abson, Steele Bodger, and L. A. Auchterlonie, Hon. Secretary, with the following visitors: Professor W. M. Mitchell (Scottish Branch), Messrs. L. Hamilton, J. C. Deville, T. B. Abbott, G. D. Graham, R. H. Ewart, J. M. Rorrison, G. E. Sampson, E. Marrison and G. Woodhead.

An apology for absence was received from Mr. F. A. Davidson.

The minutes of the last meeting were read and signed.

Election of New Member.—Mr. D. A. Lake was elected.

Nomination of New Members.—Mr. J. M. Rorrison, of Lichfield, Mr. R. Hamilton, of Alfreton, and Mr. Cochrane-Dyet, of Tutbury, were nominated.

Demonstrations: Ante-mortem and Post-mortem Examination of Cattle and Pigs

[H. Burrow, M.R.C.V.S., D.V.S.M.]

The meeting then adjourned to Barker's Knacker Yard, where Mr. H. Burrow, M.R.C.V.S., D.V.S.M., the Derbyshire Divisional Officer, Ministry of Agriculture, gave "Demonstrations of *Ante-* and *Post-mortem* Examination of Cattle and Pigs."

(1) The first cow which Mr. Burrow demonstrated was an aged roan cow in milk. The *ante-mortem* history was that of loss of condition and chronic cough of a type suggestive of tuberculosis. Auscultation revealed harsh sounds in the left lung and râles and "cooing" sounds in the right lung, especially in the dorsal region. This animal gave a definite positive reaction to bovine tuberculin at the left side of the neck and at the caudal and vulvar folds. There was a large diffuse swelling below the eye as the result of tuberculin injected into the periorbital fat (subpalpebral test). Avian tuberculin produced no reaction on the other side of the neck.

Post-mortem Examination.—Miliary tuberculosis of both lungs; tuberculous lesions in the bronchial, mediastinal and mesenteric glands.

(2) The second cow inspected was also in milk and her history was also of loss of condition and chronic cough. In this case positive sputum was obtained. Auscultation showed râles and "cooing" sounds in the left and right lungs, especially the middle and dorsal thirds. Positive reaction to bovine tuberculin on the left side of the neck and the left caudal and vulvar folds and positive reaction to the subpalpebral test in the right eye. All these reactions were exceptionally well marked.

Post-mortem Examination.—Tuberculosis of both lungs, of pleura and peritoneum and tuberculous lesions in the bronchial, mediastinal, mesenteric and hepatic glands and substance of the liver.

(3) The third cow was also an aged cow in milk. In this case an induration of the right hind quarter of the udder, high up at the posterior edge, of a hard nodular variety, had been observed on routine inspection. The milk was sent by Mr. Burrow for biological examination and proved to be positive. No tuberculin tests were applied to this animal. It was noted on clinical examination that the supramammary gland could not be palpated.

Post-mortem Examination. — Tuberculosis of both lungs, of the pleura and peritoneum; tuberculous lesions in the bronchial, mediastinal and mesenteric glands, on the capsule of the spleen, in the substance of the right hind quarter of the udder and in the right supramammary lymph gland.

(4) The fourth cow was dry and in an emaciated condition and was secured for the demonstration by Mr. Burrow himself when he observed her in the knacker's yard. She had been sent by the farmer for destruction and had not been dealt with under the Tuberculosis Order. Inspection of the animal showed anaemia and no other obvious cause for the emaciation. There was little appreciable reaction to bovine tuberculin on the left side of the neck, no reaction to tuberculin in the left vulvar fold but an indefinite reaction to tuberculin in the left caudal fold shown by some thickening of the fold without acute inflammatory reaction. The meeting was divided in its opinion as to whether reactions to the tuberculin test were present in this animal, but the subject was in a debilitated condition and was scarcely a suitable subject for giving definite opinions upon.

Post-mortem Examination. — Tuberculosis of both lungs and tuberculous lesions in bronchial and mediastinal lymphatic glands.

(5) The fifth subject was a red cow in milk which had been slaughtered before the meeting commenced and fully dressed, so that Mr. Burrow could demonstrate the position of carcase and visceral glands and the method of finding and sectioning these glands.

*Received for publication May 22nd, 1939.

This concluded the bovine portion of the demonstration and a large white store pig was now produced which showed a well-marked reaction to bovine tuberculin in the left ear. Mr. Burrow's practice is to inject the tuberculin into the anterior aspect of the ear at its base and in this subject avian tuberculin was used in the other ear with negative results. In Mr. Burrow's estimation this is a better method of injecting the tuberculin in pigs as the reactor produces a grossly thickened ear and the reaction is very definite. It would appear a simpler method of applying the test.

Post-mortem Examination. — Tuberculous lesions in submaxillary glands, in the bronchial, mediastinal, hepatic and mesenteric glands. These lesions showed early caseation and calcification, typical of the type produced by the bovine tubercle bacillus.

The method of carrying out systematic *post-mortem* examination with special reference to diagnosis of swine fever, was demonstrated in detail on this pig.

In the course of the demonstration, Mr. Burrow demonstrated his method of catching sputum from cows. He preferred to close the nostrils with his hand so as to induce coughing; he then held in front of the cow a wire frame covered by a piece of special paper on which the sputum was projected.

His method of collecting blood for the agglutination test for abortion was to tie a string tightly round the base of the ear, thereby causing distension of one of the auricular veins from which sufficient blood was caught for all purposes.

He described in full detail the technique of the intradermal tuberculin test in the neck, caudal and vulvar folds and also the subpalpebral test.

Tattooing cattle for identification purposes was also demonstrated.

The location of the superficial lymphatic glands on the live bovine and the use of the phonendoscope for auscultation of the bovine chest were also described.

Objective signs of tuberculosis and examination of the udder for induration suggestive of tuberculosis completed a very interesting demonstration in the live animal.

The stunning and slaughtering of pigs also formed part of the demonstration.

In regard to the diagnosis of anthrax, Mr. Burrow expressed his disapproval of the method of the removal of the ear for obtaining blood. He preferred a superficial vein and made it a practice always to take back three smears to his laboratory so that there would be no hitch in the subsequent microscopic examination.

In conclusion it may be said that this demonstration and subsequent talk by Mr. Burrow was surely the very best demonstration that many of us had attended. The infinite trouble which the demonstrator had devoted to providing material and the pains with which he elaborated the facts to the meeting were very much appreciated. Mr. Burrow was accorded a very sincere vote of thanks.

A collection for the Victoria Veterinary Benevolent Fund was taken at tea and realised £1 18s. 6d.

L. A. Auchterlonie, *Hon. Secretary.*

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

June 12th.—D.V.S.M. Examination begins.

June 13th.—Meeting of the Dumfries and Galloway Division, N.V.M.A., at Lockerbie House Hotel, 10.45 a.m.

June 14th.—Meeting of the Lancashire Division, N.V.M.A., at Crewe, 2 p.m., to be followed by annual summer meeting at the Cheshire School of Agriculture, Reaseheath, nr. Nantwich.

June 15th.—N.V.M.A. Special Committee on Tuberculin Tests, 36, Gordon Square, W.C.1, 2 p.m.

June 19th.—Meeting of the Editorial and other Committees of the N.V.M.A. at the Royal (Dick) Veterinary College, Edinburgh. Editorial, 4 p.m.

June 20th.—N.V.M.A. Committees and **Council** Meeting, Royal (Dick) Veterinary College, Edinburgh.

June 20th.—R.C.V.S. Committee Meetings.

June 21st.—R.C.V.S. Committee Meetings.

June 21st.—**R.C.V.S. Annual Dinner.**

June 22nd.—R.C.V.S. Committee Meetings.

June 23rd.—R.C.V.S. Committee and **Council** Meetings.

June 30th and July 1st.—R.C.V.S. Written Examinations.

July 23rd—28th.—N.V.M.A. Congress at Great Yarmouth and Gorleston-on-Sea.

Revision of Rates for Classified Advertisements

We would draw the attention of those concerned to the revised rates for the insertion of classified advertisements notified on page xi of this issue. The new rates will apply to all advertisements for these sections received from this date (June 10th) for insertion in the next and subsequent issues of the *Veterinary Record.*

* * * * *

R.C.V.S. ANNUAL DINNER

We trust that all Members R.C.V.S. who have not yet done so will respond immediately to the circulated appeal that they should forward to the Secretary, R.C.V.S., their applications for tickets for the annual dinner to be held at the May Fair Hotel on Wednesday, the 21st instant. Many men of eminence in the spheres of science and politics will be the guests of the Royal College and we are confident that there will be a very large body of members present in support of the President. We are asked to make particular mention of the fact that the presence of ladies will be welcomed.

* * * * *

PERSONAL

C.M.G. for Mr. Robert Daubney

The Birthday Honours.—In the list of Birthday Honours conferred by the King and which was published on Thursday last, we note with gratification that in the Colonial Office List the C.M.G. has been conferred upon Mr. Robert Daubney, O.B.E., M.R.C.V.S., Director of Veterinary Services, Kenya, while in the Burma Office List the O.B.E. is received by Mr. David Thomas Mitchell, M.R.C.V.S., Director of Veterinary Services, Burma.

. . . .

Births.—Cameron.—On May 28th, 1939, at the nursing home, 71, Great King Street, Edinburgh, to Mary (*neé* King), wife of John Cameron, B.Sc., M.R.C.V.S., D.V.S.M., a daughter.

Griffiths.—On May 26th, 1939, to Elizabeth, wife of J. A. Griffiths, F.R.C.V.S., 4, Denmark Villas, Hove, a daughter.

Skea.—On May 30th, to Helen, wife of Arthur Skea, M.R.C.V.S., "Mountblair," Old Scapa Road, Kirkwall, Orkney, a daughter.

. . . . .

As announced with regret in our issue of December 17th, Mr. F. Ware, C.I.E., F.R.C.V.S., Animal Husbandry Expert, Imperial Council of Agricultural Research, India, came to England on leave on medical grounds at the end of last year. Mr. Ware, we learn, has now been granted an extension of leave and is due to resume his duties in India on October 11th.

. . . . .

It is with pleasure that the Liverpool University Veterinary Society announces that two of its members have been honoured, by being elected the President and Lady President of the Guild of Undergraduates of the University of Liverpool for the session 1939-1940. Mr. G. A. Willis (the President) is a final year student, and the Lady President, Miss M. D. R. Morse, is a fourth year student.

In the realm of athletics, a member of the Society distinguished himself at the University sports. He is Mr. G. D. Shaw, and gained the *Victor Ludorum* Cup by his excellent performance.

* * * * *

R.C.V.S. OBITUARY

Heelis, Leonard William, The Paddocks, Solihull, Warwick. Captain late R.A.V.C. Graduated London, July 14th, 1898. Died June 5th, 1939; aged 64 years.

. . . . .

The Late Mr. W. Turtill, M.R.C.V.S.

In reference to the late Mr. W. Turtill, M.R.C.V.S., whose death we recorded with much regret in our last issue, the *East Anglian Daily Times* observes: "Mr. Turtill, who was 73, was widely known among Suffolk agriculturists, having practised at Wickham Market for over 40 years. He was a familiar figure at most of the agricultural, horse and canine shows in the district, which he attended in his capacity as veterinary surgeon. A keen bowls player, he was President of the Wickham Market Bowls Club, and also took a wide interest in the life of the town."

Farmers from many parts of Suffolk attended the funeral, the service at Wickham Market Church on May 27th being conducted by the Vicar (the Rev. S. E. Caller). Among the large company present were the following members of the veterinary profession: Mr. W. L. Downie (Leiston) with Mrs. Downie, Major T. G. Heatley (Woodbridge), Mr. G. S. Muir (Needham Market) and Mr. C. C. Nesling (Framlingham).

* * * * *

GENERAL OBITUARY

Charles H. Mayo, M.D.

Dr. Charles Horace Mayo, the great American surgeon who, with his elder brother, Dr. William J. Mayo, founded and conducted the medical and surgical clinic at Rochester in the State of Minnesota, died in Chicago on May 26th, aged 73. The names of William and Charles Mayo are famous throughout the world wherever surgery is practised. When the United States entered the War in 1917 they were made joint chief consultants in charge of all the surgical services in the U.S. Army.

The *British Medical Journal,* in an appreciative notice, recalls how the father of the Mayo brothers, William Worrall Mayo, a young Manchester chemist, emigrated to the United States in 1845, and travelled slowly west in search of opportunity, learning medicine as he went, first as an apprentice in Indiana and later at the infant university of Missouri, then an outpost in hostile country: how he moved with his young family to Minnesota, where he was provost surgeon during the civil war, and was sent in 1862 with an expedition to quell the Sioux rising, bringing back the skeleton of a chief to teach his sons osteology: how he watched their education in the midst of an ever-growing practice at Rochester: how, helped by his newly graduated elder son, he cared for the victims of a cyclone that swept the town in 1883, and was then asked by the Sister of the Order of St. Francis to direct the new hospital of St. Mary erected by them in memory of his work: how in 1889 the doctor, now aged 70, took charge of the 40 beds, presided over his sons, taught them what he knew of surgery, and handed over the task to them: how the skill of the lads grew and their fame as surgeons spread, so that the work

swelled from 751 operations in 1895 to 8,251 in 1910 and 23,628 in 1925: how in 1894 the brothers decided to devote all their earnings, beyond a yearly sum sufficient to give them reasonable remuneration for their work, to furthering the cause of medical education and the welfare of the sick: and how from this resolve has grown that community of educational foundations, hospitals, parks, and public buildings, that centre to which the sick flock for relief and the medical profession for enlightenment, known as the Mayo Clinic.

* * * * *

LEGAL NOTES

Pose as a Veterinary Surgeon.—At Long Ashton (near Bristol) Police Court on June 2nd, Leslie Lawrence James Harrison, whose address was given as the Corner House, Stack Lane, Longford, and who did not appear, was summoned for "not being on the register of the Royal College of Veterinary Surgeons, he took the addition or description that he was a horse, cattle and canine specialist, late consulting specialist to the British Veterinary Association and the Western Veterinary Research Association."

We understand that, in January last, the defendant was warned by the Royal College and given the opportunity of signing an undertaking that he would discontinue the offence. Harrison ignored this, and therefore a prosecution was authorised by the College at its meeting in April.

Mr. W. Ireland, prosecuting on behalf of the Royal College, said that Harrison went to the farm of Mr. B. B. J. Pearce, at Winford and inoculated 25 cattle for four shillings each.

On the bill he presented he described himself as "L. L. J. Harrison, Horse, Cattle and Canine Specialist, late consulting specialist to the British Veterinary Association and the Western Veterinary Research Association."

He admitted he was not a qualified man, but said he was practising in order that he might save up the money to meet the expenses of the five years' training, as he hoped to qualify in due course.

Police Inspector Watts said Harrison had been in the Long Ashton and Glastonbury districts for the past six months. The police had had a great deal of correspondence about him over the case and other matters.

Harrison was fined £5 with 28s. 6d. costs.

* * * * *

WAR VETERANS' CRUISE TO THE U.S.A. AND CANADA

An Invitation from France

Doubtless some of our readers will be interested in the following invitation, addressed "To the War veterans of Great Britain" which has reached us via Monsieur A. Cholet, veterinarian, of Chantilly, who has many English friends and would be glad if any of these and other members of the profession here could join him on this trip:—

"The French War veterans of the district of Normandy are making a cruise to the United States and Canada this summer and invite you to join them. They will sail on July 21st from Le Havre on s.s. *Georgic*, calling a few hours after at Southampton, and due to arrive in New York on Saturday, July 30th.

"About a week will be spent in the U.S., including New York and its suburbs, with guides, several free days for the World's Fair, Washington, Chicago and Niagara Falls. From there the members of the party short of time will return by the night train to New York in time to catch the boat back to England. The others will go either by boat or train to Canada, and visit Toronto (three days), Montreal and the Laurentides (two days), Quebec, sailing from that port for home, coming down the beautiful St. Lawrence River.

"Whilst in Toronto, the members of the party who are veterinary surgeons or farmers will spend a day visiting the Ontario Veterinary College and adjoining it the Ontario Agricultural College, which are both in Guelph, about 40 miles from the city.

"The return fare, tourist class on the boat, and including all other expenses (hotels, meals, excursions with guides, transportation), except wine in the hotels and tips on the boat, will come to about £70, with £8 extra for those returning home by the St. Lawrence. For the booking of the berth and further details, please write directly to: Mons. Ch. Toussaint, secrétaire, Association des Anciens Combattants, 15, Rue Jules-Lecesne, Le Havre, France.

* * * * *

GRADE OF ABATTOIR DIRECTOR, JOHANNESBURG

Following upon the intimation made in recent issues of the pending retirement of Colonel J. Irvine-Smith, the following report from the Johannesburg *Star* of May 16th, is of interest: "A protest by the South African Medical Association against a recommendation of the Parks and Estates Committee of the City Council to regrade the position of Director of the Abattoir and Livestock Market Department was considered at a meeting of the General Purposes Committee to-day.

"The Association wrote protesting against the veterinary profession being singled out for de-grading, and urged the retention of the present grade, stating 'It will certainly be a retrogressive step if this department, which has been built up to its present high state of efficiency by the present director, ably assisted by his staff, one of whom will now probably succeed him, should be reduced from its major rank.'

"Speaking of the attempt being made to get Governmental control of the abattoir, the letter added that if the Council accepted the recommendation it would provide another strong argument in favour of placing the abattoir under the control of the Department of Agriculture."

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

* * * * *

ROYAL SANITARY INSTITUTE'S ANNUAL CONGRESS

To the Editor of the Veterinary Record

Sir,—Please may I be permitted through the medium of the *Veterinary Record* to remind members of our profession of the Health Congress organised by the Royal Sanitary Institute to be held at Scarborough from July 3rd to 8th. The Veterinary Hygiene Section under the Presidency of Colonel Sir Arthur Olver, C.B., C.M.G., F.R.C.V.S.,

will meet on the mornings of July 6th and 7th, and after the usual address from the President, papers will be presented on "The Position of the Veterinary Surgeon in the Larger English Meat Factories," by Mr. D. J. Anthony, M.R.C.V.S., D.V.S.M., Chief Veterinary Surgeon, Messrs. Marsh & Baxter, Ltd., Brierley Hill, Staffs.; "Tuberculosis of Poultry," by Mr. J. E. Wilson, B.Sc., M.R.C.V.S., Royal (Dick) Veterinary College, Edinburgh; and "Clean Milk Production," by Mr. E. F. Hardwick, M.R.C.V.S., Divisional Inspector, Ministry of Agriculture and Fisheries, Yorks. N.R. The paper on tuberculosis in poultry will be supported by a demonstration comprising about 50 preserved specimens kindly provided by Mr. Wilson, and I think it will be admitted that the above programme should be very attractive to veterinary surgeons.

In these days when veterinary public health work is in danger of being disregarded, it is suggested that it is very desirable that the Veterinary Hygiene Section should be well supported by members of the profession inasmuch as this Congress provides the medium whereby it can be shown, and if necessary maintained, that the veterinary profession is able to contribute an important part to the public health activities of the Government and local authorities throughout the country.

For the last few years the Royal Sanitary Institute's Congress has not been well attended by veterinary surgeons, and it is to be feared that as a profession we are in danger of losing the status we had gained as public health officers; under these circumstances it is to be hoped that this year's Congress will be favoured with a considerable increase in the number of veterinary surgeons attending the section specially provided for veterinary questions in relation to public health.

Yours faithfully,
J. A. Dixon,
Recording Secretary, Section D
(Veterinary Hygiene),
R.S.I. Congress, Scarborough.

Public Health Department,
12, Market Buildings,
Leeds, 1.

June 2nd, 1939.

* * * * *

THE COUNCIL, R.C.V.S. AND CAMBRIDGE UNIVERSITY

To the Editor of the Veterinary Record

Sir,—There did not seem to me to be any sound reason advanced for granting such extraordinary concessions to Cambridge University by our Council at its last meeting. There were many others, I feel sure, who, like myself, were astonished that a proposal to place the veterinary representatives of Veterinary Physiology and Veterinary Anatomy under the Medical Professors, and of Stable Management and Veterinary Hygiene under a Professor of Agriculture, should ever have been considered by our own Council. For many years we have been fighting to secure a proper position for our subjects. I know, and many similarly placed know, what it means to have to struggle to gain a status. On this I could write a great deal.

The only consolation one can derive from the meeting is that out of 29 present, only 15 voted for the proposition, and though only five voted against, nine apparently did not vote.

The status of our subjects not only affects the teachers, it affects the standing of the whole profession.

Having just returned to England after having fought for many years for recognition for our profession, my surprise on consulting the *Record* and reading the proceedings of our Council can be imagined.

Yours faithfully,
Edward Morgan.

"De Lejos,"
23, Crest Road,
Hayes, Kent.

June 1st, 1939.

* * * * *

ANIMALS IN AIR-RAID SCHEMES

To the Editor of the Veterinary Record

Sir,—The Chairman of the Royal Society for the Prevention of Cruelty to Animals has sounded a clarion call to the Society and municipal authorities to include animals in their schemes relating to air raids. This call has received much "copy" from the lay Press of late and incidentally gained kudos for this Society.

But is this not a case of putting "the cart before the horse"?

Surely the veterinary profession—the custodians of the health and protection of the animal population of these Isles—is the primary body to direct public opinion and authority in this vital matter. In my view the R.C.V.S. is the directing authority here—or should be. The R.S.P.C.A. is concerned with civil cruelty; in martial cruelty their claim is subsidiary.

The fact is, the R.S.P.C.A. advertise their activities too much while we in our modesty "hide our light under a bushel."

Yours faithfully,
Wm. Scott.

Fryern Hall,
Bridgwater,
Somerset.

June 4th, 1939.

[It will be within the knowledge of many of our readers that the N.V.M.A. has been co-operating with such bodies as the Home Office and the R.S.P.C.A. in connection with various committees considering the subject of air raid precautions for animals. We hope to be in a position to give to our readers shortly further information as to the activities of these committees and of the "National" in this regard.—*Editor.*]

* * * * *

R.C.V.S. COUNCIL ELECTION, 1939

To the Editor of the Veterinary Record

Sir,—May I, through the columns of the *Veterinary Record*, express thanks to the 546 Fellows and Members of the profession who recorded a vote in my favour at the recent R.C.V.S. Election and so secured me a seat on Council for a further period of time.

Yours faithfully,
John Holroyd.

Simmons Street,
Blackburn.

June 3rd, 1939.